

DRMS IS/IT

*DRMS Business
Education*

*Information Systems and
Information Technology*

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Many individuals who helped with this project were part of the Intergraph team. Ray Patterson designed all the graphics and did extensive on-site assessment, Paul Hession kept everyone on track and, Margaret Ross, James Schindler, Roger Haley, and Chris Hudson gave valuable input into the project and carefully reviewed the manuscript. Helga James acted as my research associate and training analyst, and was responsible for putting all the pieces together that make up the text, the student workbook, and all other instructional materials. Last, but not least, I would like to thank anyone and everyone who together with me supports the fundamental principal behind Business Education that was so well coined by Colonel Mansfield, “Business Education shows us the way across the bridge!”

All steps were taken to avoid mistakes or omissions but some may still remain. I accept the fault in advance and apologize for

whatever or whoever was left out. I hope everyone who takes the course or just reads the text internalize Information Technology and the Information Systems it makes possible as a new and permanent part of his or her life.

Dr. Saul (Sonny) Barr
Gulf Shores, Alabama
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Raymond R. Patterson
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Table of Contents

ACKNOWLEDGEMENTS	I
PREFACE.....	IX
CHAPTER ONE THE INFORMATION AGE: THE BLOODLESS REVOLUTION	1
CHAPTER HIGHLIGHTS	1
INTRODUCTION: BUSINESS EDUCATION AND DRMS.....	2
WHY EVERYONE MUST BE COMPUTER COMPETENT	5
THE INFORMATION AGE: THE BLOODLESS REVOLUTION	6
EVOLUTION OF THE INFORMATION AGE	8
FOUR TYPES OF COMPUTERS	15
A UNIQUE AND VITAL MISSION	18
DRMS HISTORY - TIME LINE.....	19
ROLE OF THE CHIEF INFORMATION OFFICER	33
CULTURAL CHANGE	34
SUMMARY AND CONCLUSIONS	35
CHAPTER TWO COMPUTER TECHNOLOGY AND SYSTEMS BASICS: DRMS USES IS/IT	37
CHAPTER HIGHLIGHTS	37
INTRODUCTION.....	38
THE PARTS — HARDWARE, SOFTWARE AND DATA	40
<i>Hardware</i>	40
<i>Software</i>	46
<i>Hardware and Software Relationships</i>	51
<i>Data</i>	51
INTERNET AND THE WORLD WIDE WEB	53
<i>Getting Connected</i>	54
<i>More on Data Transmission</i>	58
<i>Transmission Control Protocol/ Internet Protocol TCP/IP</i>	59
INTERNET AND WEB UTILITIES.....	60
NETWORKS.....	64
<i>Networking and LANs, VANs, WANs and Servers</i>	64
<i>Network Types</i>	65
<i>Network Topology</i>	66
INFORMATION SYSTEMS ENHANCE THE INFORMATION TECHNOLOGY	68

IS/IT MANAGING WORKFLOW	69
<i>Accounting</i>	71
<i>Marketing</i>	71
<i>Production</i>	72
<i>Human Resources</i>	72
<i>Research</i>	73
INFORMATION TECHNOLOGY AND SYSTEMS AND GLOBAL COMPETITION.....	74
COMPUTERS AND PRODUCTIVITY	77
INTERNET VERSUS INTRANET AND EXTRANET	80
SUMMARY: DRMS USES COMPUTER BASICS	83

CHAPTER THREE COMPUTER TECHNOLOGY AND SYSTEMS APPLICATIONS: DRMS APPLIES IS/IT 85

CHAPTER HIGHLIGHTS	85
INTRODUCTION	86
DOD ORGANIZATION, IS/IT	86
DEFENSE DEPARTMENT ACTIVITIES DIRECTLY RELATED TO DLA/DLSC/	
DRMS INFORMATION TECHNOLOGY MISSION	90
<i>The Department of Defense Activity Address Directory (DoDAAD)</i>	90
<i>The Defense Automatic Addressing System Center (DAASC)</i>	91
<i>Defense Logistics Information Service (DLIS)</i>	91
<i>Defense Information Systems Agency (DISA)</i>	92
<i>DISA Mega Centers</i>	92
<i>Defense Logistics Support Command (DLSC)</i>	92
<i>Defense System Design Center (DSDC)</i>	92
GOVERNMENT USE OF THE INTERNET	93
BASIC WORD PROCESSING	95
THE DRMS WEB SITE	100
THE VIRTUAL DRMO	100
DRMS SECURITY AND COMPUTER INTEGRITY	102
ELECTRONIC DATA INTERCHANGE (EDI) AND ELECTRONIC COMMERCE (EC)	
.....	104
ELECTRONIC MAIL	105
DISCUSSION GROUPS	106
WEB UTILITIES	108
APPLICATIONS OF THE WEB	109
<i>Search Engines</i>	110
CHAPTER SUMMARY AND CONCLUSIONS	111

CHAPTER FOUR COMPUTER TECHNOLOGY AND SYSTEMS INTERFACE: DRMS INTERNAL AND EXTERNAL SYSTEMS..... 112

CHAPTER HIGHLIGHTS	112
INTRODUCTION: COMPUTER SYSTEMS INTERFACE AT DRMS	113
TYPES OF DRMS INFORMATION SYSTEMS	114
<i>Automated Usecode Request Application (AURA)</i>	114
<i>Base Operations Support System (BOSS)</i>	119
<i>Communications System (Non-office Automation)</i>	119
<i>Contractor Inventory Redistribution System (CIRS)</i>	120
<i>Conversion of Referral and Local Sales (CORALS)</i>	121
<i>Corporate Daisy (DAISY)</i>	121
<i>DRMS Automated Information System (DAISY)</i>	121
<i>DLA Contract Action Reporting System (DCARS)</i>	122
<i>Daisy National Sales Program (DNSP)</i>	122
<i>Decision Support System (DSS)</i>	123
<i>Defense Environmental Network Information Exchange (DENIX)</i>	123
<i>Defense Working Capital Fund (DWCF)</i>	124
<i>Environmental Audit Management System (EAMS)</i>	119
<i>Environmental Reporting System (ERS)</i>	124
<i>Equipment Management And Control System (EMACS)</i>	124
<i>FLIS and FLIS Plus - Federal Logistics Information System</i>	125
<i>Interrogation Requirements Inform-ation System (IRIS)</i>	126
<i>Intransit Accountability System (IAS)</i>	126
<i>Management Information And Dis-tribution Access System (MIDAS)</i> ..	126
<i>Message Accountability And Delivery System (MADS)</i>	127
<i>Military Engineering Data Asset Locator System (MEDALS)</i>	128
<i>Military Standard Requisitioning And Issue Procedures (MILSTRIP)</i> ...	128
<i>Office Automation Hewlett Packard (OA HP)</i>	128
<i>On-Line Report System (ORS)</i>	129
<i>Personnel Action Request System (PERSACTION)</i>	129
<i>Problem Tracking Reporting System (PTR)</i>	129
<i>Recycling Control Point (RCP)</i>	130
<i>Safe-Alert/Latent Defect (SALD)</i>	130
<i>Single Hazardous Input Program (SHIP)</i>	130
<i>Safety Information Management System (SIMS)</i>	131
<i>Situation Reporting System (SitRep)</i>	131
<i>Small Arms Serialization Program (SASP)</i>	131
<i>Standard Automated Material Manage-ment System (SAMMS)</i>	132

<i>Suspense Database</i>	<i>133</i>
<i>World Wide Web Server.....</i>	<i>133</i>
SUMMARY AND CONCLUSIONS	133
<i>Applying One System</i>	<i>134</i>

CHAPTER FIVE COMPUTER TECHNOLOGY AND SYSTEMS OF THE FUTURE: DRMS 2010..... 136

CHAPTER HIGHLIGHTS	136
INTRODUCTION	137
DOD IS/IT STRATEGIC PLAN.....	137
DEFENSE LOGISTICS AGENCY INFORM-ATION TECHNOLOGY PLAN	140
DRMS STRATEGIC BUSINESS PLAN	142
DRMS' USE OF THE INTERNET IN THE FUTURE	149
FUTURE TRENDS.....	151
WHAT OTHERS ARE SAYING ABOUT IS/IT AND EMPLOYEES	153
<i>Esther Dyson.....</i>	<i>153</i>
<i>Fred Hapgood in Inc. Tech 1998.....</i>	<i>154</i>
<i>John J. Donovan</i>	<i>155</i>
<i>Melissa A. Cook.....</i>	<i>156</i>
<i>Howard Rheingold.....</i>	<i>157</i>
<i>Kevin Kelly.....</i>	<i>158</i>
A LOOK INTO THE FUTURE OF INFORMATION TECHNOLOGY	159
<i>Increased Bandwidth</i>	<i>161</i>
<i>Pervasive Internet</i>	<i>166</i>
<i>Information Appliances.....</i>	<i>167</i>
<i>Digital Memories</i>	<i>170</i>
<i>Voice Over IP.....</i>	<i>171</i>
<i>Home Monitoring.....</i>	<i>171</i>
<i>Electronic Books.....</i>	<i>172</i>
<i>New Internet-Based Services</i>	<i>172</i>
<i>Electronic Stock Exchanges.....</i>	<i>174</i>
<i>Distance Learning.....</i>	<i>174</i>
<i>Remote Consultation and Diagnosis.....</i>	<i>175</i>
<i>Networked Games</i>	<i>175</i>
<i>Home Media Delivery</i>	<i>175</i>
<i>Upcoming Technologies – Products of the Future.....</i>	<i>176</i>
IS/IT AND YOU.....	182
TIE IN “YOU, INC.” AND THE OTHER 5 DRMS BUSINESS EDUCATION COURSES	186

SUMMARY OF THIS CHAPTER	188
SUMMARY OF THE COURSE	189
APPENDIX I – DRMS FISCAL 1997 AND FISCAL 1998	
STATISTICS	191
APPENDIX II -- DOD DEFENSE AGENCIES	192
BIBLIOGRAPHY	214

Preface

This text is intended to help DRMS employees understand the application of Information Technology (IT) and how it relates to the DRMS mission and to the Information Systems (IS) that support the DRMS business processes. This course is the third of a five-course DRMS education and training program begun in January 1997 to provide the entire DRMS workforce with essential knowledge and skills for success in a changing environment. Each of the five courses speaks about forces everywhere that are changing what we do everyday. The five courses began with an initial overview of what DRMS faces like everyone else in the Department of Defense (DoD), from political/military, economic and financial forces, entitled *The Challenge: The Choice to Change*. The second course, called *DRMS: Diamond Service*, zeroes in on customer focus and quality at DRMS. Quality and customer services are at the heart of government and commercial business service. This, the third in the series, is entitled *DRMS IS/IT*. The symbolism of "DRMS IS/IT," means that for DRMS to be successful in changing to a lean, high performance and cost effective DoD organization, Information Technology and the resulting Information Systems supported by that technology are key. Without information technology to create effective information systems, DRMS' chance of success in the future is greatly reduced. Our business can become faster, better, smarter and more affordable by better use of IS/IT (Information Systems/Information Technology). IS/IT is key to what has so widely been said within DRMS - "Move Information Not Material!" The fourth course is focused on budgeting and financial management. The final capstone course will be a presentation of the DRMS workforce and workplace of the future. The DRMS Business Education Program is an innovative educational program that is intended to move DRMS to continuous improvements,

meeting the disposal needs of the DoD for years to come. Together, all of the courses explain how DRMS has and will respond to the changes that have and will be thrust upon it.

This text is to be the "take away" reference that DRMS employees can continually reflect upon to gain understanding as to what IT and IS are and how they affect DRMS. Data and business processes create the need for information technology to grow. Information technology is the body of knowledge that creates the information systems we use to reengineer or change to make organizations faster, smaller, smarter and less expensive.

In different ways, IT and IS have always been with us since we began thinking. Computers and software are only recent forms of Information Technology.

IT - the tools you use to track and compile information.

IS - the methods you use with the tools (IT) to compile and track information.

Please note the official DRMS policy on Web/Internet use explained in detail in DRMS-D 5200.5. DRMS does not condone or encourage the use of any specific commercial web site.

Technical support questions about DRMS can be answered by calling the DRMS Help Line at (DSN) 932-4999, or commercial (616) 961-4999. DRMS also has a call center to answer questions for external customers [(888) 352-9333], and the DRMS National Operations Service Center to answer questions about DRMO day to day operations. Numbers for all of these can be found on the DRMS web site.

Chapter One









The Information

Age:

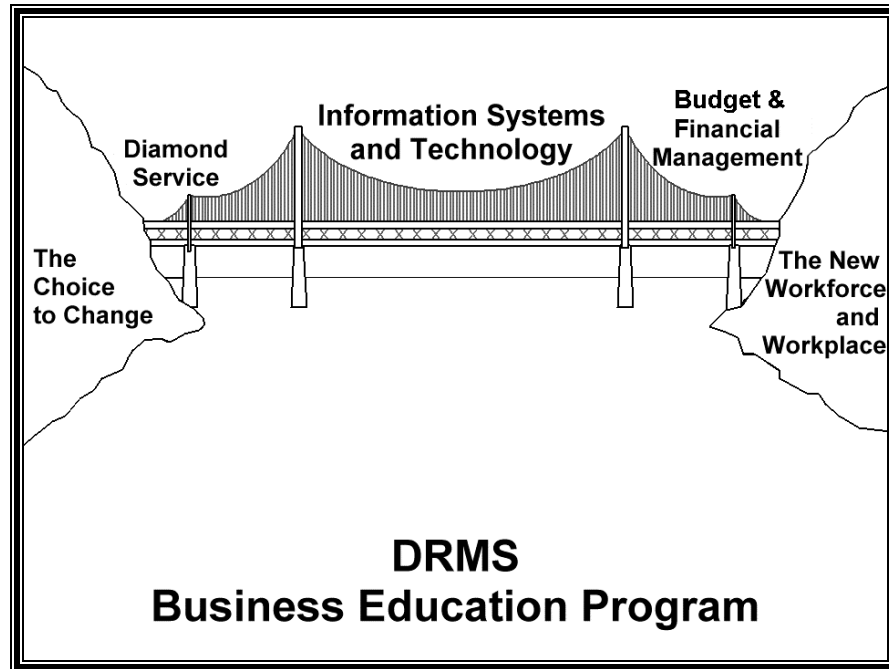
The Bloodless

Revolution

Chapter Highlights

-  The relationship between this course and other business education courses is part of the DRMS redesign and reengineering efforts.
-  Reasons why everyone must be computer competent.
-  The evolution of the information age and how it relates to DRMS.
-  The types of computers.
-  The unique and vital mission of DRMS and IS/IT.
-  The DRMS history timeline in IS/IT.
-  The role of the Chief Information Officer.
-  Cultural change and IS/IT at DRMS.

DRMS IS/IT: DRMS Business Education



Introduction: Business Education and DRMS

The DRMS does not stand alone in its quest to compete in what has become an information revolution. According to *Computing Essentials Annual Report* published by Prentice Hall, in 1998, over 50% of all Americans are now employed in one form or another in an information-based job. Whether a broker, dealer, or banker, they all use information to do their jobs. DRMS has a job that is much more important than selling. DRMS is charged with the responsibility for R (reutilization), T (transfer), D (donation) and S (sale) of surplus DoD personal property, hazardous waste disposal contracting, and Demil. The information technology and the information systems supporting them are key.

DRMS IS/IT: DRMS Business Education

This course was conceived and delivered to DRMS as an organization and a culture. It came as DRMS was “crossing the bridge” (Col. Robert E. Mansfield, Jr., USAF, the current DRMS Commander) to reengineer operations from moving material to moving information. While DRMS is still greatly involved in storage and warehousing, that function slowly diminishes as RCP (Recycling Control Point) and other electronic forms of doing business begin to dominate. Information is replacing much of the need for physical handling. This third Business Education course, DRMS IS/IT, is exactly what it says. DRMS' future is IS/IT. DRMS is the broker of excess and surplus DoD property, and information is what a broker must use to be effective. In order for DRMS to truly cross that bridge to a viable future, every employee must grasp the basics of information technology and its systems. Every service DRMS provides, in one way or another, impacts the financial health of our Armed Services. Business Education is like no other educational program. These courses were not designed to explain what has happened; rather, they are intended to better prepare people to understand the actual organizational and process changes at DRMS in response to an ever-changing world. People must be informed in order to make decisions and learn new skills and talents.

This course was conceived because DRMS embraces technology and innovative operating systems to survive in an ever-changing business and government environment. The embracing of technology in DRMS began years ago, but the explosion of technology useful to what DRMS does has resulted in accelerated potential. DRMS personnel must become more than computer literate. The movement of physical property is increasingly being replaced with moving information (not just in DRMS, but everywhere). DRMS employees must become masters of the information highway that will someday ship the products and services DRMS provides. DRMS can and will move information

DRMS IS/IT: DRMS Business Education

not material. This concept is ongoing at DRMS, not necessarily because DRMS wants it that way, but because that is the way it has to be. This course is designed to build a base knowledge level of IS/IT for each and every DRMS employee and to act as a springboard in using and working with new and innovative technological structures. Terms like DAISY, MIDAS, BOSS, DSS, Unix, and MSDOS may all sound confusing now, but they won't when this course is done. The Internet, worldwide web and related software and hardware will become part of your personal tool kit.

“By the year 2000 over 50% of all workers will be in data services—for example, gathering, processing, retrieving, and analyzing data.”

U.S. Department of Labor, 1998

The theme of this course is that the information age is upon us. Just like the political, economic and financial forces changed the structure of the military and all the services that support it, so has the charge to use information systems and information technology throughout society. DRMS is like all other Defense Activities, military services and the private sector when it comes to IS/IT. Everyone is getting “connected” to process information better, faster, cheaper and smarter ways to serve the customer. DRMS serves the warfighter, and the warfighter needs instant access to DRMS' services and inventory.

*“As the world becomes faster-moving, companies (and government agencies) will stay ahead not with proprietary knowledge, but with the constant flow of new technology and ideas. **Employees will be valued for what they can produce not what they have produced.**”*

Esther Dyson in Release 2.1 (1998)

DRMS IS/IT: DRMS Business Education

This course is not designed to make you a computer expert or to train you to use computers; it is intended to give you a broad general IS/IT background. You will learn to be a more valuable employee both inside and outside DRMS. You will learn where computer technology and information systems came from, inside and outside DRMS, and where computer technology and information systems are going in the future. You will understand how DRMS has responded to “move information, not material!”

“Since 1993, the U.S. work world has added 25,000,000 computers. The number of cellular phones subscribers jumped from zero in 1983 to 16,000,000 by the end of 1993.”
Rich Tetzeli, “Surviving Information Overload,” Fortune, July 11, 1994.

Why Everyone must be Computer Competent

Why be computer competent?

- ✓ We can do more with IT.
- ✓ We use IT more.
- ✓ We are going from paper to electronic filing.
- ✓ New skills and understanding are needed to stay current.

DRMS IS/IT: DRMS Business Education

“Already an estimated two-thirds of the U.S. employees work in the service sectors [including DRMS] and knowledge is becoming our most important product.”

Peter Drucker in Post Capitalist Society, 1997

A solid grounding in basic information technology and primary computer competency makes YOU more valuable in your DRMS job or any other job. Learning about computers and software is important for your future. Becoming computer competent means learning how to meet your and your employer's information needs. Above all, computer competency improves you and your organization's productivity. DRMS has a mission to reutilize, market and properly dispose of DoD surplus property. Computer competence is the means to increase the productivity of that mission. Whether or not your future is part of DRMS' future will make no difference in the importance this course has for you.

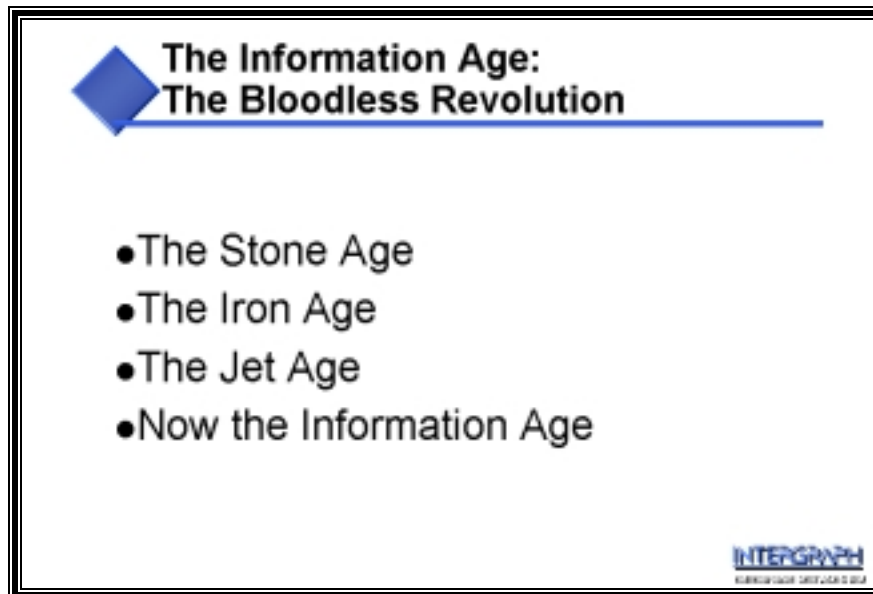
Computer competence will be part of you and will travel with you. Knowledge and skills are portable and increase your confidence and value as a person and as an employee. As with all other Business Education courses, one builds upon the other. YOU and what you know makes you become a more valuable employee to anyone. At DRMS, we call this YOU, Incorporated.

The Information Age: The Bloodless Revolution

As with all other revolutions in technology, the Information Age came without warning and changed everything. The Stone Age introduced new tools that became weapons. The Iron Age made weapons possible to quickly destroy the armies of foes. The Jet Age made it possible to tie the world together in hours, not days or months, and to allow nations to attack others from great distances.

DRMS IS/IT: DRMS Business Education

Each of these Ages changed the world amidst bloodshed. Ages came with revolutionary technology that made everything different. The Information Age is the same as these in many ways. Information makes us all knowledgeable, and with that knowledge, we gain control. Many say the Information Age may have been bloodless but helped crush the former Soviet Union. How could a society survive based on secrets, when the world of commerce and ideas became limitless based upon the free and easy exchange of ideas and information?



**The Information Age:
The Bloodless Revolution**

- The Stone Age
- The Iron Age
- The Jet Age
- Now the Information Age

INTERGRAPH
CORPORATION 1997-2000

The "Bloodless Revolution" is not just about computers. IS/IT drove the change; as in DRMS, the advent of ever-new IS/IT changed everything. Just like in the first Business Education course, this course explains how Information Technology came from external forces and was internalized in DRMS' organization. Again, another external force demanding increased performance at reduced cost continues to drive DRMS' future.

DRMS IS/IT: DRMS Business Education

The Industrial Revolution opened world markets and global competition. The IS/IT Revolution has simply intensified global competition and forced government to respond in kind.

The U.S. leads the world in the free exchange of ideas. It leads in Information Technology and the Information Systems they support. The result is economic growth and prosperity. DRMS sits squarely in the middle of this bloodless revolution.

Evolution of the Information Age

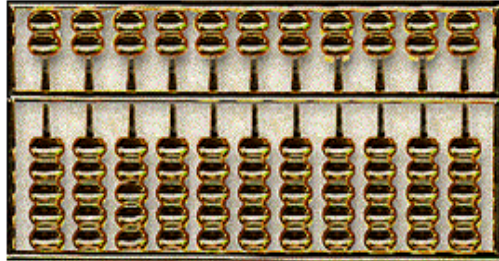
Only a few years ago, most people had little to do with computers. Specialists handled them, and we thought nothing about them. We may have paid computerized bills, filled out computerized forms, or taken computerized tests, but we did not think about the future of the oncoming information age. Did you know?

- ☞ In 1995, there were about 100 million microcomputers in use.
- ☞ In 1998, over 350 million microcomputers were in use.
- ☞ From 1880 to 1980, the percentage of the U.S. workforce employed in the field of information grew from 5% to 50%.
- ☞ Today, over half of all employees work in some aspect of the information industry and IS/IT is continuing to drive that trend. (U.S. Department of Commerce, Office of Telecommunications Policy)

"People have been processing data and information in some form since prehistoric times. However, it was the development of the computer that recently revolutionized information processing. Since the first generation of computers were built, the subsequent three computer generations have produced smaller, more powerful, and less expensive machines—mostly as the result of the development of the integrated circuit."

Sara E. Hutchinson and Stacey C. Sawyer in Computers and Information Systems, Irwin, 1996.

DRMS IS/IT: DRMS Business Education



Over 5,000 years ago, the only computing device that man used to count was a stone or stones placed in grooves dug in the dirt. Around 3,000 years ago, the Chinese strung stones into a wooden

frame, or a *Baccus* or abacus (see illustration to the left). The first computing machine came in 1642. In 1843, the first computer programmer was a woman named Ada Lovelace; the DoD named a standard programming language after her called "ADA". Since this first computing machine, there have been at least four generations of computers. The DoD was among the first to integrate computing directly into their mission. As we discuss them, the growth of IS/IT and how DRMS fits in will become evident.

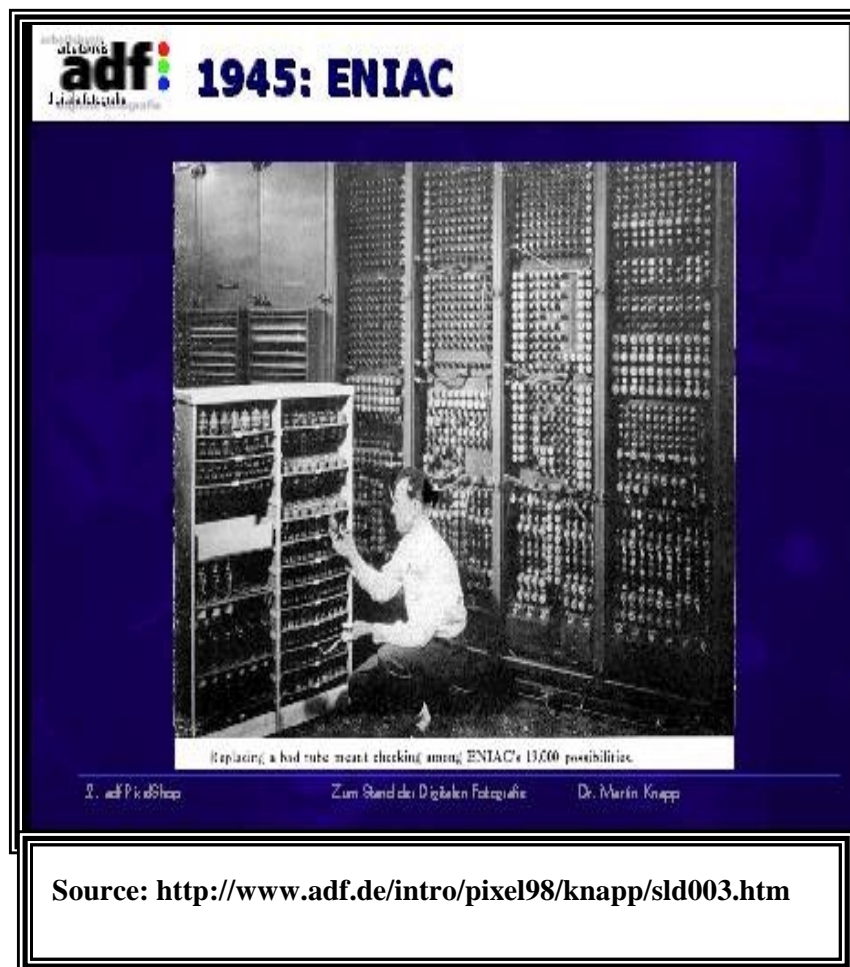
First Generation Computers (1944 - 1958)

The first large-scale computer came in 1945 and was called the ENIAC (shown). It weighed 30 tons and was the size of an average single family home! It included 18,000 vacuum tubes, similar to the ones formerly used in radios before transistors. This computer failed about every 7 minutes!

One of the first programmers on this machine was Grace Murray Hopper, who went on to be an admiral in the U.S. Navy. One day, she found a bug beaten to death in the jaws of a relay. She glued it into the logbook of the computer and, thereafter, when the machine stopped (frequently), she said that they were "debugging" the computer. That very first bug still exists in the National Museum of American History of the Smithsonian Institution.

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These first computers cost around a half a million dollars. Another example of a first generation computer was the UNIVAC I (Universal Automatic Computer), first used by the US Census Bureau. Connecting wires on a "peg" board programmed these computers. Today, the equivalent computer power can be bought for less than \$100.



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Second Generation Computers (1959 - 1963)

A simple electric switch, called a transistor, revolutionized the computer industry and started the second generation of computers. Transistors eliminated vacuum tubes and relays and were much smaller and much more reliable. Information storage or memory was provided by what looked like a stack of plastic records on a stick rotating around a read/write head or device. These rotating magnetic disk packs were the very first data storage devices. Later came magnetic tape for data storage. Because of transistors, second generation computers were smaller, faster, and more reliable than the first generation of computers and were widely used by DoD.




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Third Generation Computers (1964 - 1970)

The Integrated Circuit [IC] was the focus of the third generation. The IC is a complete circuit of tiny transistors “etched” on a small silicon chip. These Integrated Circuits again performed the same functions as the vacuum tubes or transistors, providing a reliable, simple, compact ON/OFF device. This basic technology is in all DRMS computers.


The silicon chip uses magnetic disks for memory. These magnetic disks are like the floppy disks used by DRMS. You may remember the large, flat, black disks used by some of the first computers of this generation. This technology is still in the disks DRMS uses today.

These third generation computers could handle several programs at a time. A program allows you to perform a function, such as writing a letter to your DRMO Chief or entering information about DRMS inventory. These large computers can also handle many users, or people, on the computer at the same time and were referred to as “mainframes”. In the third generation, the minicomputer was also invented. A minicomputer is what DRMS uses to hold the DAISY system. Minicomputers were much smaller and cheaper, and could perform the same functions as the mainframe computers the size of an entire room. To handle something as large as the DRMS inventory on DAISY, you must have a lot of processing power to hold information, or data, on thousands of items all over the world. That information can be handled with a smaller machine, such as a minicomputer, rather than one the size of a mainframe. DRMS still uses a mainframe in Columbus, Ohio, on a very limited basis today.

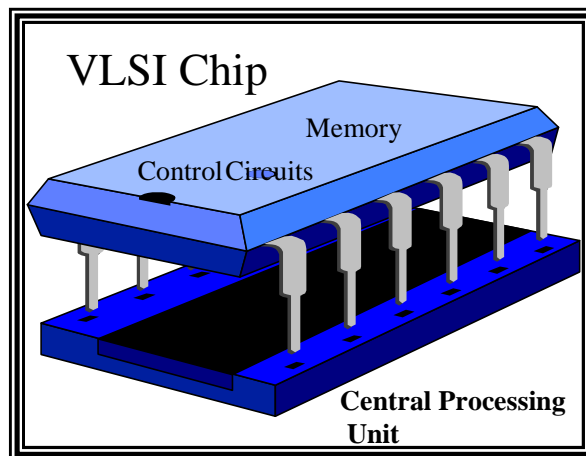


Evolution of the Information Age

- 1995 - 100,000,000 micro-computers
- 1998 - 350,000,000 micro-computers
- 1880-1980 - Information workforce 5% to 50%
- Today - Over half work in IS/IT



Fourth Generation Computers (1971 - NOW)



The fourth generation of computers came with the invention of Very Large Scale Integrated (VLSI) circuits or microprocessors (diagram shown to the left). These were like the ICs of the third generation, but had hundreds of millions of transistors

in a much smaller chip. Remember all those TV commercials that

DRMS IS/IT: DRMS Business Education

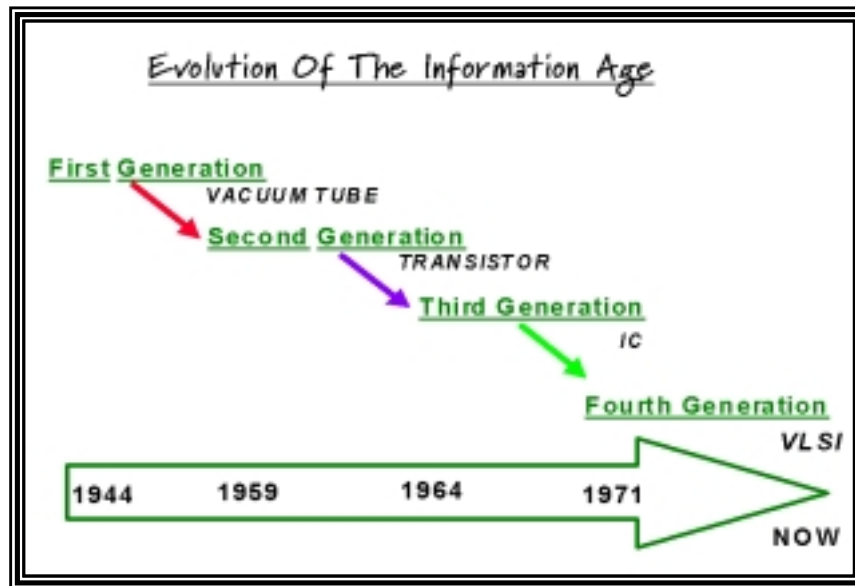
say, “.. Intel Inside?” Well, the Intel Pentium chip is one of these large-scale chips, and they are in all DRMS desktop computers. Microprocessor technology led the way for faster, smaller, smarter, less expensive computers.

“There has been more information produced in the last 30 years than during the previous 5000.”
Richard Saul Wurman in Information Anxiety, 1998

Since the start of the fourth generation, the price of computers has fallen drastically, and computer memory capacity has risen dramatically. Larger memory capacity made it possible for complicated software programs to run. These programs became widely popular and include:

- ☐ Word processing (such as Microsoft Word in most DRMS desktop computers); word processing is simply handling and assisting in writing.
- ☐ Spreadsheets (such as the Microsoft Excel program used in most DRMS desktop computers); spreadsheets are a simple and logical way to compose, group, and compare numbers.
- ☐ Database management (such as FLIS and DAISY used by DRMS); database management is simply storing and recalling information records. Database applications range anywhere from human resources records to inventory records at the dozens of DRMS DRMOs.

All of this means a great deal to DoD, DLA and especially DRMS. It is easy to see that as computers get smaller, less expensive and faster, their applications and use at DRMS increases. DRMS has to keep track of billions of pieces of information. Whether it is a property record, a hazardous waste contract, or a Demil operation, all information must be accounted for accurately. DRMS has and must continue to take advantage of the potential of IS/IT.



Four Types of Computers

Types of Computers

Microcomputers

- Notebooks
- Desktops

Minicomputers

- HP computers at DRMO
- HP computers at DRMS

Mainframe

- AMDAHL at
DISA, Columbus

Supercomputers

- NASA
- Universities

There are four types of fourth generation computers in use today: microcomputers, minicomputers, mainframe computers and

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supercomputers. Computers are electronic devices that can follow instructions to accept input, process that input, and, as a result of that process, produce information. Software used in the computer does this. Software (the computer's instructions) helps us organize the information we have so we can make decisions faster. An example of this would be the PTR or Problem Tracking Reporting system used by DRMS. PTR is used to fix problems with DRMS computers. This software program gives priority to the problems, reminds DRMS of the problems, and keeps track of the problems. This helps all of DRMS' computers to run more smoothly.

Computers accept input, process that input, and produce information output to help make decisions. DRMS uses computers every day in every aspect of their core businesses, from acquisition to disposition. This is the reason the course is called DRMS IS/IT. DRMS' primary focus is to produce information for R, T, D or S property and to present facts and records related to Demil and hazardous waste disposal. All of this requires the processing of information. DRMS IS/IT provides the information capability to run the business of DoD recycling and disposal better. IS/IT are tools to make more informed business decisions to help improve customer service, process performance and reduce costs. IS/IT are great enablers.

“ . . . we never forget that we are managers of a business [at DRMS], not managers of technologies.”
Bernard H. Boar in The Art of Strategic Planning for Information Technology, 1993.

Microcomputers

There are two types of microcomputers - the portable and the desktop. The author of this book uses both, as do many at DRMS.

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A portable computer is small enough to carry around. A laptop computer weighs from 5 to 16 pounds and has both battery and AC power. Many people carry them around to do work on the road and to take work home. Notebook computers generally weigh between 5 to 10 pounds and fit in a briefcase. Some actually weigh as little as 5 pounds! Subnotebooks weigh between 2 to 6 pounds, and are becoming more popular. With today's technology, there are even Personal Digital Assistants (PDAs), or hand-held computers the size of a pack of cigarettes. A PDA can combine pen input, writing, and personal communication tools to provide applications such as keeping addresses and "to-do" lists.

Desktop computers are too large to carry around but fit nicely on a desk. The Personal Computer (PC) is one type of desktop computer, and there are many at every DRMO. They can run a wide variety of software programs, including the word-processing program, Microsoft Word 97, that was used to write this textbook. Because of the Standard Computer System requirements by DoD, DRMS uses Microsoft NT as the operating system, Microsoft Mail for e-mail, and Microsoft Explorer to browse the Internet in all desktop computers. (Explained in detail later)

Workstations are another type of desktop computer. Workstations fit on a desk but are generally much more powerful than PCs. The software programs they run can be more powerful applications. Workstations are comparable to midsize mainframes in memory capacity and are used for sophisticated tasks, such as designing airplanes or creating special effects. Clerical people, managers and even households use PCs. On the other hand, engineers, scientists and others who process a great deal of data use workstations. DRMS will use workstations at HQ to handle complicated computer-based tasks, such as writing new software programs. An example of a program administered by DRMS is MIDAS. MIDAS

DRMS IS/IT: DRMS Business Education

is a database application used by managers and action officers to find and organize management data.

Minicomputers

The minicomputer is larger than a PC but smaller than a mainframe. (DRMS' DAISY is run on a minicomputer.) They are desk-sized and have faster speeds and greater storage capacities than smaller computers. They are used widely by mid-sized companies, as well as DRMS, to handle data storage and data processing. Many of these mid-sized machines replaced tasks that were once done only by room-sized mainframes.

Mainframe Computers

Mainframes are large computers and have to be housed in specially designed, air-conditioned rooms. Large banks, universities and the DoD use them to handle millions of transactions and to do highly sophisticated research. DRMS no longer uses a mainframe at HQ, but one is still used in Columbus, Ohio, operated by the Defense Information System Agency (DISA).

Supercomputers

The most powerful type of computer in use today is the supercomputer. These machines are specialized and are used by very large organizations such as NASA, and major research Universities. Their applications are for large-scale number crunching such as space flight, weather forecasting or computer animation.

A Unique and Vital Mission

The DRMS recycles and disposes of excess property received from the military services as well as a small number of other federal agencies. The inventory changes daily and includes tens of thousands of items - from air conditioners to automobiles, clothing to computers, spare parts, and much more. Property is first offered for reutilization within the Department of Defense (DoD), then, for

DRMS IS/IT: DRMS Business Education

transfer to other federal agencies, or donation to state and local governments and other qualified organizations. Then that property that is not “RTD-ed” is offered for sale.

After reading this statement you can see how vital IS/IT is to the survival of DRMS. DRMS, like any business, has processes that create the need for information technology. DRMS must build information systems with the available technology to get faster, smaller, smarter and to operate less expensively.

DRMS History - Time Line

Below are the major DRMS IS/IT milestones.

- ☞ The DRMS turned 25 in 1997, but the services it provides the Department of Defense date back to the end of World War II. Huge amounts of surplus property had to be disposed of and recycled after the war ended. Organizations were created to reduce the stockpile. However, the return on sales was small, and they were soon dissolved.
- ☞ Property disposal and recycling by the DoD came back in 1949, through the Federal Property and Administration Services Act. This Act let DoD control its surplus property. Each military service was tasked to develop its own program.
- ☞ In 1972, Sen. John L. McClellan (D-Ark) recommended centralizing disposal. On Sept. 12, 1972, the Defense Property Disposal Service (DPDS) was created. Added services provided to the DoD included recovering precious metals, disposing of hazardous waste and supporting humanitarian assistance programs. Only two computers were used, and notices to GSA were transmitted on paper tape. DRMOs were using paper and pencil to record actions related to property accounting, and reports were mailed.

DRMS IS/IT: DRMS Business Education

- ☞ In late 1973, the Integrated Disposal Management System (IDMS) became operational. It was a punch card-oriented system running in Battle Creek.
- ☞ In 1974, the DD1143 feeder reports were automated for the first time. Batch IRIS (Interrogation Requirements Information System) and MEFFRES (Mechanized Front end screening Final asset screening Requisition System) were implemented in 1976, and both represented major steps forward in Automated Data Processing (ADP) development.
- ☞ On Nov 17, 1978, the first call was made for requirements for DAISY - the Defense Reutilization and Marketing Automated Information System. At that time, DAISY was referred to as IDMS II.
- ☞ In 1982, DPDS received its first word processors. On May 10, 1982, the Intransit Accountability System (IAS) became operational.
- ☞ In 1983, the first personal computers began arriving in DRMS.
- ☞ On July 1, 1985, the DPDS was renamed the Defense Reutilization and Marketing Service (DRMS). The Property Disposal Offices (PDOs) became Defense Reutilization and Marketing Offices (DRMOs).
- ☞ In 1985, the DoD's Interrogation Requirements Information System (IRIS) was implemented. IV Phase computers were a type of minicomputer used to process various applications, one being RUSS, the Reutilization Subsystem, which was the mechanism that controlled reportable property prior to the implementation of DAISY. IV Phase computers were also used for subsystem input for Marketing and Environmental. Falcon systems were used for E-mail (ELM) and Gould NP-1 computers processed applications in the regions.

DRMS IS/IT: DRMS Business Education

- The DoD's MILSTRIP was implemented in 1986 as Mini-MILSTRIP, which interfaced with IDMS. Micro Assisted Data Entry (MADE) was implemented around 1986, as a temporary replacement for keypunching, until the implementation of DAISY.

Soon, computers called 3B2s, a type of Unix server built by AT&T, were positioned in the field to run the new system DAISY with a three-tiered design, a computer in the field, at the region and at HQ. On July 30, 1990, a team trained and deployed the first fully operational DAISY site. There was a conversion process from IDMS to DAISY.

With the DAISY implementation, on-line IRIS was available to DRMOs and DRMS customers, which provided immediate visibility of assets using outdated listings. DAISY also facilitated full DoD MILSTRIP operations at the DRMOs.

- Single Cycle Processing streamlined and automated disposal processing in 1991, ultimately helping speed up the process.
- On-line MILSTRIP requisitioning by military customers from DRMS was implemented in 1993. In 1994, the DAISY National Sales Program (DNSP) was deployed.
- Soon after deployment of DAISY began, the middle tier (region) of DAISY was removed and DAISY became a two-tiered system. The next upgrade involved replacing the AT&T Model 3B2 computers with bigger, faster HP computers.
- In July 1994, the DRMS World Wide Web was developed and implemented.
- On April 7, 1994, the first prototype for the Recycling Control Point (RCP) was deployed at DRMS and The Defense Depot at Charleston, South Carolina.

DRMS IS/IT: DRMS Business Education

☞ Currently, DRMS is making changes to improve its responsiveness to customers. The DAISY Modernization Program is involved with improving the interfaces and integration of the Defense Reutilization and Marketing Service Information Technology processes.

Today, the DRMS effort to make property available for reuse within the government saves more than \$3 billion annually through cost avoidance.

History of the Internet

The Internet is an international network of computers that connect and talk to each other through telephone lines, satellites, and fiber optic cable all over the world.

Put simply, the Internet is a worldwide network of computer networks. Eighty million people use the Net worldwide, and the figures are growing at the rate of one million new users per month. This growth rate is constantly increasing.

The Internet, however, is not just a collection of networks. Computer networks are simply the medium by which information travels. The wonder of the Internet is information including current weather forecasts <<http://cirrus.sprl.umich.edu/wxnet/>>, the Library of Congress <<http://loc.gov/>>, collections and exhibits, and worldwide software archives. Information abounds.

DRMS went live with its Web Site in the spring of 1994. It gave instant access worldwide to anyone wishing to learn about DRMS. By the fall of 1995, you could search the DRMS database for property. This gave R, T, D and S customers access to the billions of dollars' worth of excess/surplus inventory. The process of upgrading and improving the Web Site continues.

DRMS IS/IT: DRMS Business Education

The DoD created the Internet in 1969 under the name ARPAnet to have two specific purposes:

- 1. To share information research between military, industry, and university sources.*
- 2. To sustain a communication link in times of nuclear holocaust.*

Think of the Internet as a roadway system - a network connection that can handle a certain volume of traffic at a certain speed. The Internet also has some high speed data highways called *backbones*. There are major access points on these backbones to which many smaller networks connect. ARPAnet, created in 1969 by the United States Department of Defense, was the original backbone of the Internet. Today, its replacement, the National Science Foundation (NSFNET) backbone, is also funded by the Federal government and was an enhancement to support research organizations such as universities. The Commercial Internet Exchange (CIX) established a commercial backbone, separate from NSFNET that is now used for commercial traffic. Commercial Internet traffic is now the fastest growing segment of the Internet.

Today, the Internet has been released by the government and is essentially a self-governing and independent worldwide web. What makes the Internet so powerful is sharing information. The Internet offers unlimited information sharing opportunities for RTD and S, and DRMS in general.

*“The Internet provides a quantum leap of progress in the integration of business strategy and information technology.”
John J. Donovan in The Second Industrial Revolution, 1998*

DRMS IS/IT: DRMS Business Education

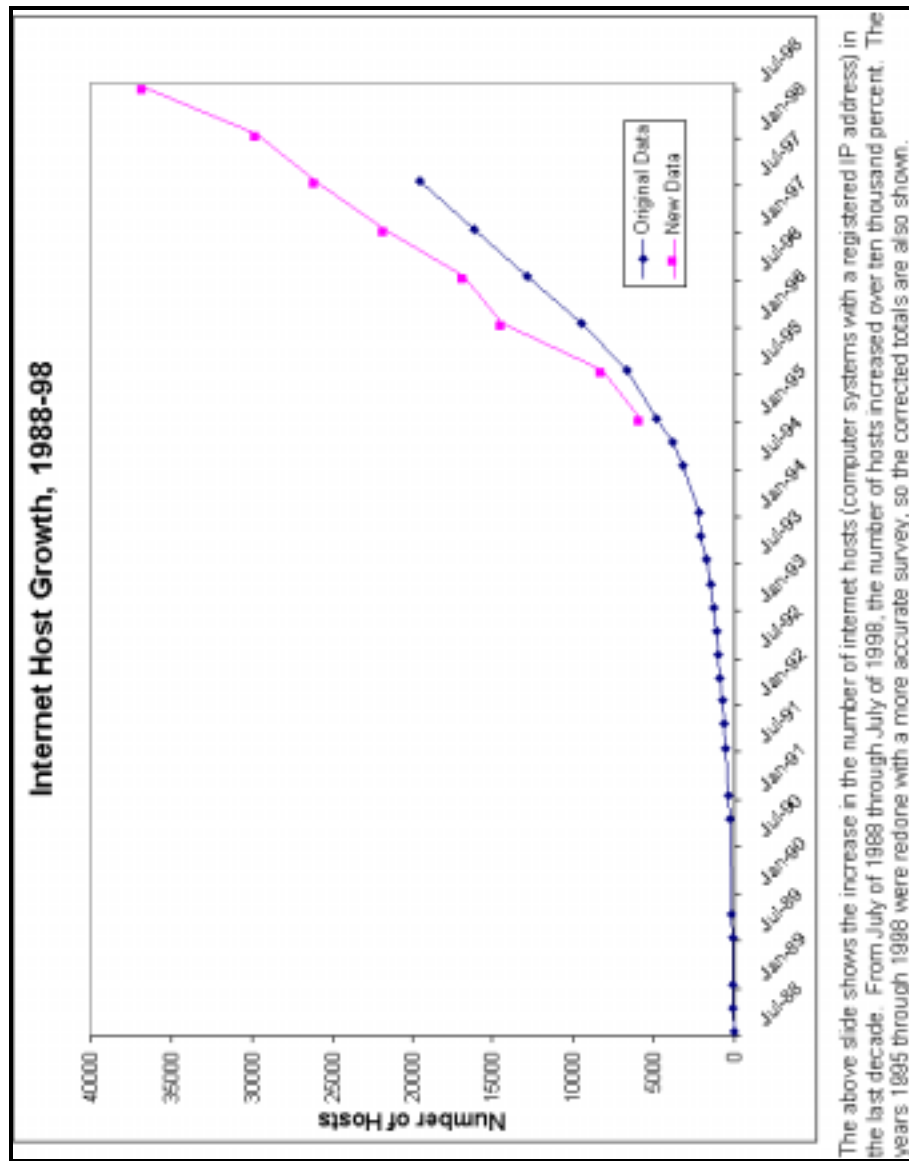
DRMS continues to update its Web site:

- ☞ In 1996, DRMS added digital pictures to their Web page to help DRMS customers visualize and understand property characteristics and condition. You know the old saying, "A picture is worth a thousand words."
- ☞ Military Standards Requisitioning and Issue Procedures, or MILSTRIP was added in the spring of 1996. It is a standard method of ordering property in the DoD supply system.
- ☞ Using the DRMS Web site to search the World Wide DRMS inventory came in the summer of 1997.

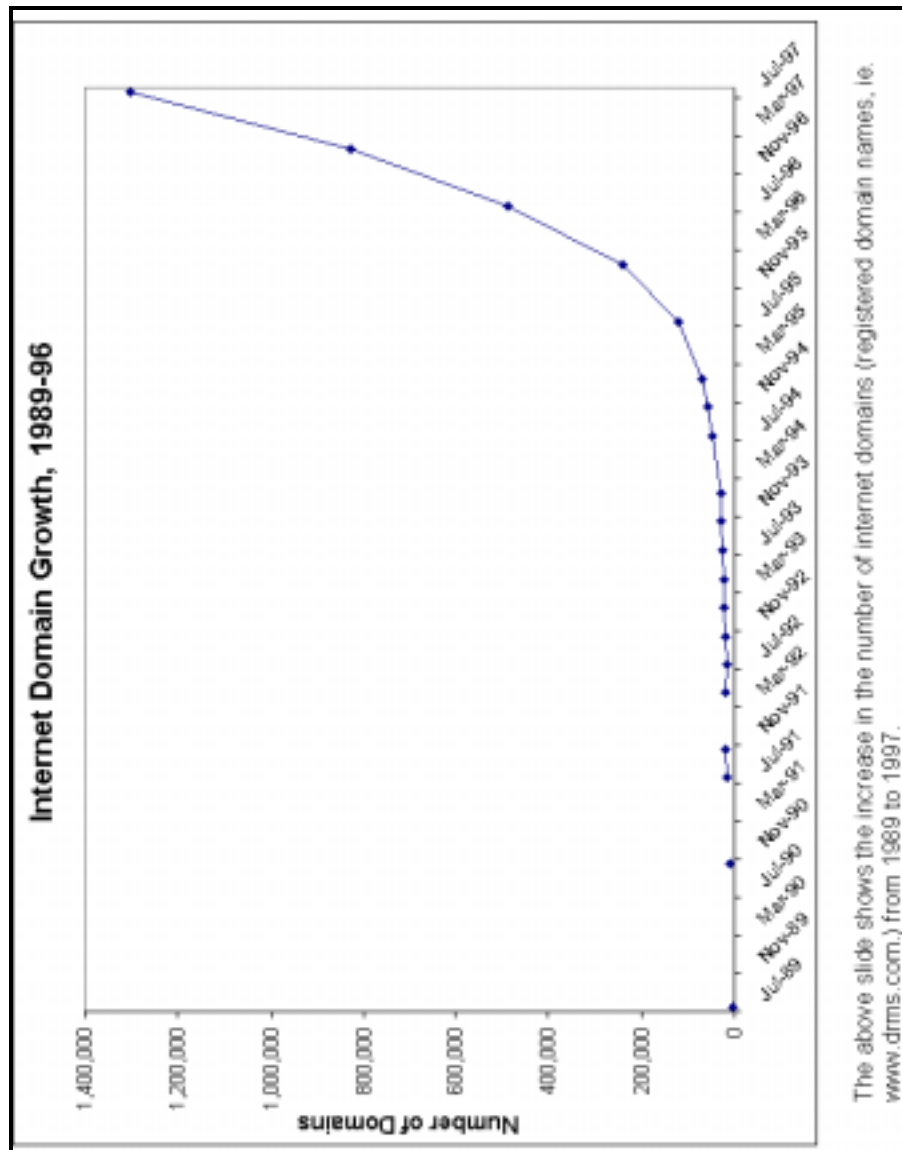
While all of this was going on, DRMS added new dimensions to the Web Site. Now, you can go from the DRMS Web site to other DoD sites from the DRMS web page. These are called "links." DRMS employees and customers today can find out even more about what is going on in the organization. As you can see, the Web Site greatly increased DRMS communications capabilities and possibilities.

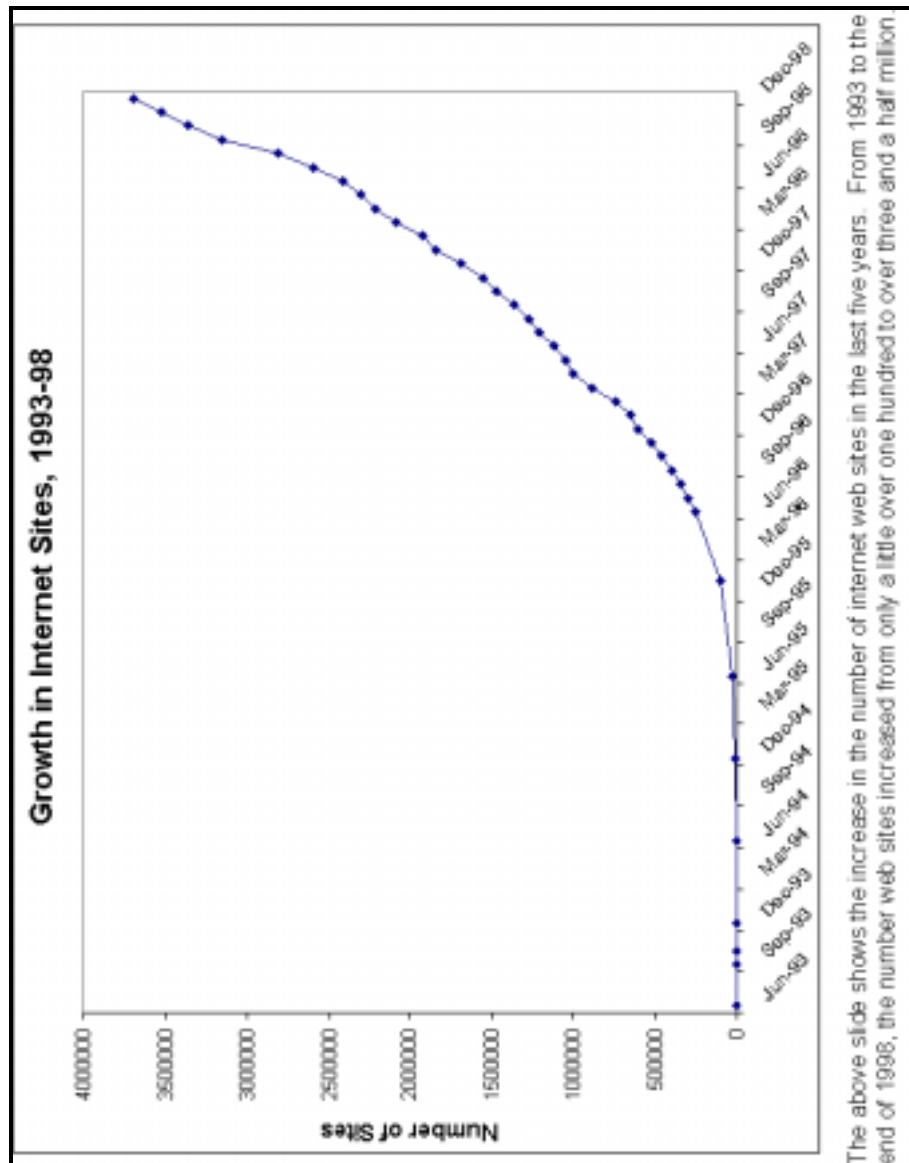
By the summer of 1997, DLIS FEDLOG characteristics were added, and you could get descriptions of the property by simply placing your mouse arrow on the National Stock Number (NSN).

DRMS IS/IT: DRMS Business Education

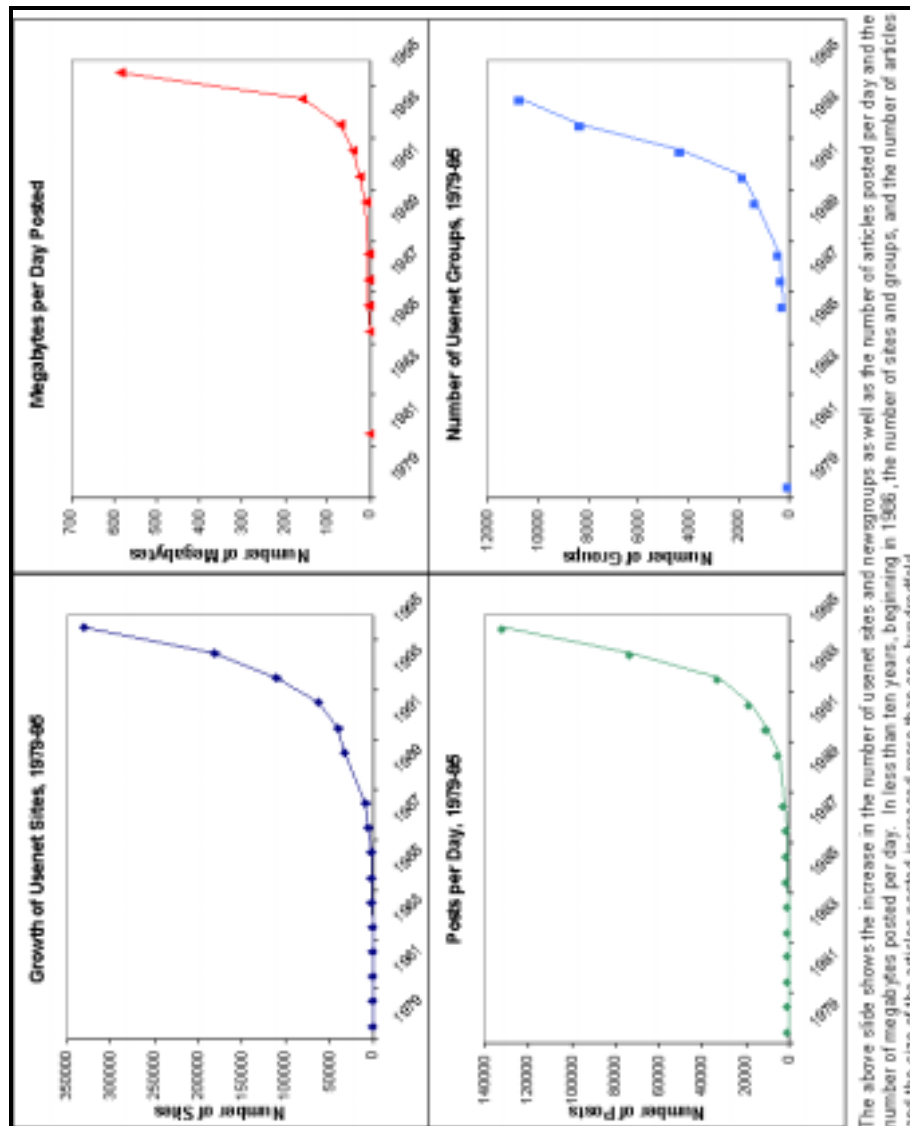


DRMS IS/IT: DRMS Business Education

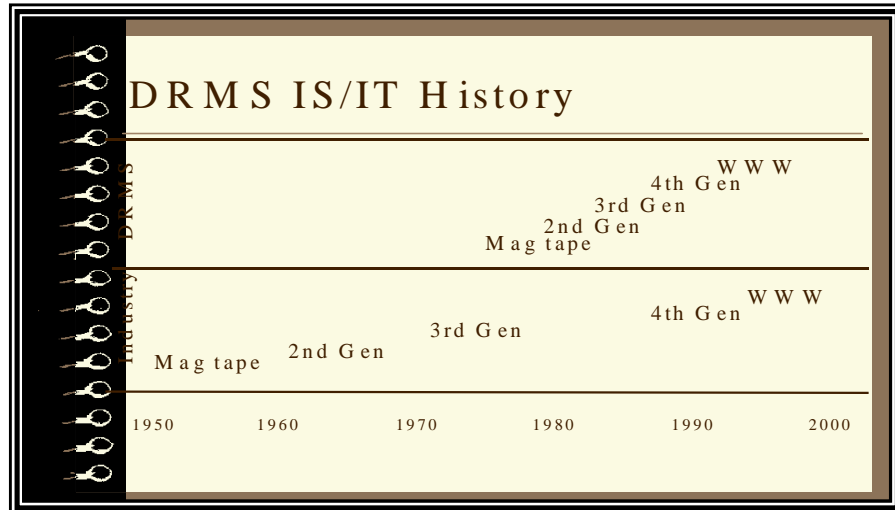




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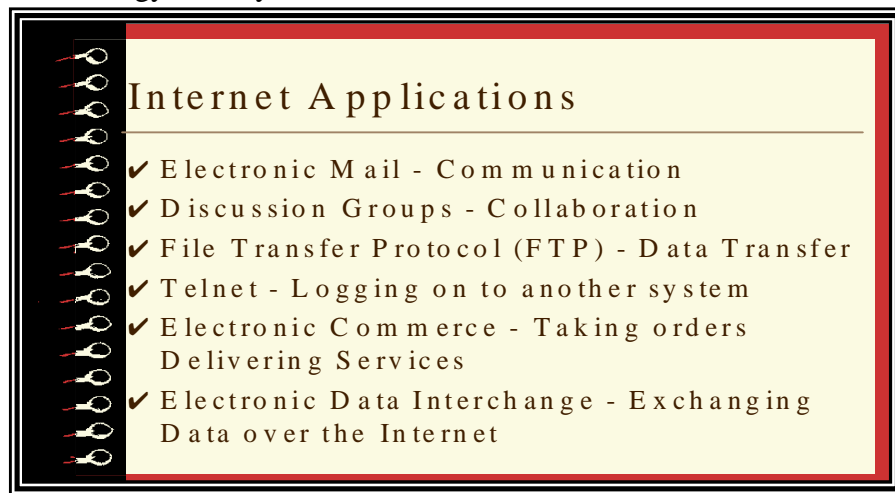


There was an increased efficiency with FEDLOG, and you could do batch searches that same summer. Now, you can look for multiple items with a single search. The official sales catalog upload program (CORALS) was added that same summer as well.

- ☞ In the spring of 1998, the Web page was upgraded. New DRMS photos and texts were added to enhance the page.
- ☞ FLIS (Federal Logistics Information System) Plus was instituted in the summer of 1998. It is serviced by DLIS (Defense Logistics Information Service). See Chapter 4 for a complete description of FLIS and FLIS Plus.
- ☞ MIDAS (query interface), which provides the generator a method to do interactive DTID History Reports, Interactive E-Mail Reports, and Static or Periodic Reports via the MIDAS Homepage, came in the fall of 1998.
- ☞ Weapon system search capabilities were also added in the fall of 1998. The Federal Logistics Information System (FLIS) was also added. See Chapter 4 for more information.

DRMS IS/IT: DRMS Business Education

As the Web Site stands today, in less than a minute you can scan the DRMS worldwide inventory and get complete descriptions, locations, condition codes and much more for any National Stock Number (NSN). It is safe to say that DRMS is one of the leaders in the Federal Government, DoD and DLA in Web technology, and its improvements continue. The continued creative use of web technology is a key to DRMS' future.

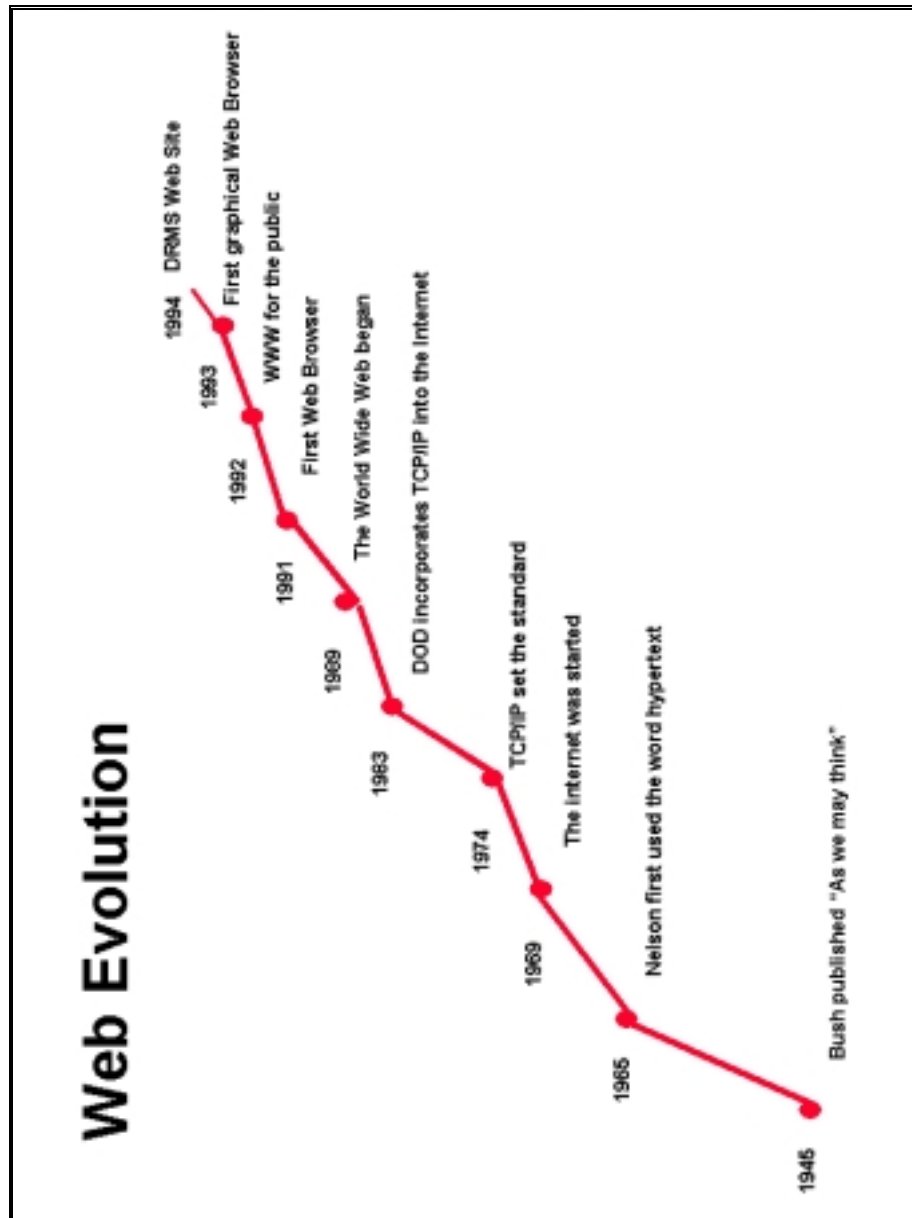


What are people using the Internet for?

- E-mail (electronic mail)
 - UseNet (public discussion groups)
 - FTP (files from remote databases)
 - Telnet (accessing remote computers)
 - Electronic Commerce (conducting business and shopping)
1. Electronic mail, or e-mail, opens unlimited communication possibilities. Anyone can write and respond to anyone else connected to the Internet. You can send anything from a letter requesting a day off to an entire presentation on the FLIS Plus system. Email has become a "high-tech party line."

DRMS IS/IT: DRMS Business Education

2. Discussion groups can be joined over the Internet. You can read, discuss and debate a variety of issues. DRMS uses public discussion groups called Chat Groups to get the word out and to carry out discussions on timely topics worldwide. DRMS uses a system called UseNet for discussion groups.
3. File Transfer Protocol, or FTP, is used in data transfer. It lets you look at files anywhere on the Internet and make a copy. DRMS uses FTP every time it sends any information via the World Wide Web. Electronic Data Interchange (EDI) happens when computers within a network exchange information. DRMS uses EDI every time it formulates its data to travel through any internal or external networks. Finding information about DRMS inventory on the Web Site is an example.
4. Telnet makes your computer a terminal for other computers on the Internet. You can run programs being held by other computers so those programs do not have to be loaded on your computer. DRMS uses Telnet to run programs on desktop computers that are tied together. DAISY access on your PC is an example.
5. Electronic Commerce is taking orders and delivering services through an electronic means. DRMS has achieved Electronic Commerce using its web site. Consumers can use the Web Site to shop and buy property from DRMS.



Role of the Chief Information Officer

“ The responsibilities of the head of the information systems function now go far beyond operating efficient production programming shops. The executive must understand the goals of the enterprise and work in partnerships with line peers to deploy IT to attain organizational goals.” According to Barbara C. McNurlin and Ralph H. Sprague, Jr. in Information Systems Management in Practice, Prentice Hall, 1998, page 33.

According to McNurlin and Sprague, the CIO's responsibilities are in six major areas.

- *Understanding the business and the markets that the organization serves.*
- *Establishing credibility of the computer information systems department to increase the confidence of the command function in the ideas presented relating to IT.*
- *Creating a vision for the future and selling it by setting goals for the use of IT by the organization.*
- *Increasing the technological maturity of the organization and making it easier for all employees to use IT.*
- *Implementing an information system architecture that will support the vision of the organization.*
- *Developing and nurturing relationships with senior managers, line executives, suppliers, partners and both internal and external customers.*

The role of the Chief Information Officer (CIO) in any organization is key to the organization's IT. At DRMS, IS/IT has

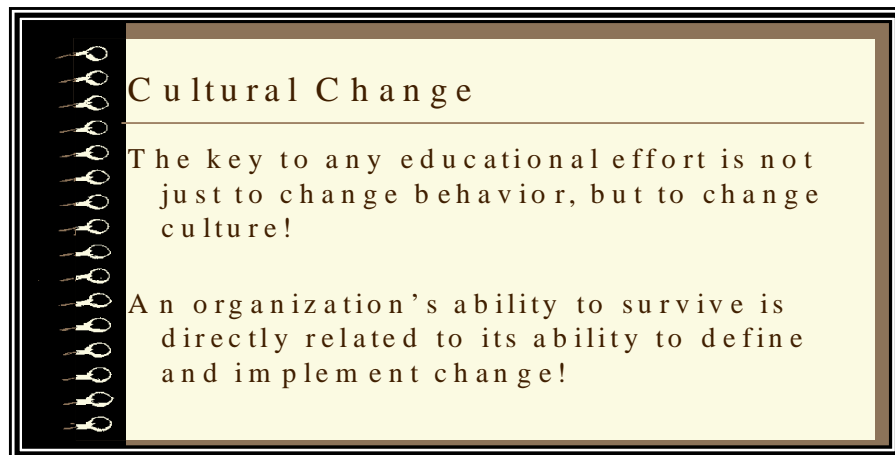
DRMS IS/IT: DRMS Business Education

become part of the performance of every aspect of the organization. IS/IT is the driving force to determine the organization's growth, direction, structure and potential. The CIO not only has traditional responsibilities, such as managing remote systems, but he/she also has many new responsibilities as well. The Chief Information Officer will continue to take on greater and greater responsibilities. His/her role in an organization will continue to expand as IS/IT does.

Note: Chapter Five explains the DoD Information Technology Management Strategic Plan which maintains the CIO leadership.

Cultural Change

Anyone who is currently working at DRMS knows that things have changed. "Things are not like they used to be." Have those changes translated into true cultural change? A change in how we perceive ourselves, our mission and our place in DRMS, DLSC and DLA? The Graham Windsor Group has researched and measured DRMS' change and identified the specific barriers to achieving the necessary change.



DRMS IS/IT: DRMS Business Education

While barriers still exist, assessments show that those barriers are coming down and employees are internalizing much of the DRMS change. Success will follow. The key to any educational effort is not just to change behavior but to change culture. Only with this depth of change can an organization hope those changes are built into the future of the organization. “The future of DRMS depends on this change!”

*“Our fascination with technology has made us forget the key purpose of information: to inform people.”
Thomas Davenport in Information Ecology, 1997.*

Summary and Conclusions

The advent of the information age and the evolution of information technology have had a major impact on the world. The information age is a bloodless revolution but no less influential or dramatic than any other major transition of society throughout history. DRMS is only one player in a worldwide information marketplace. DRMS must, like any other organization, stay abreast of the technological revolution or be left behind. DoD was the catalyst for the advent of the information age. U.S. government contracts provided the funding that initially made much of the technological innovation in computer and information processing/systems possible.

The "Bloodless Revolution" is another external force driving DRMS not only to change, but also to do so rapidly. No blood is being shed in the "Bloodless Revolution," but an increasing demand for experience and productivity is demanded. This pace of change is revolutionary for government. As the other DRMS Business Education Courses explained how political, economical and quality forces affect DRMS; IS/IT has as well. DRMS has and will continue to embrace IS/IT, and needs to do so to survive.

DRMS IS/IT: DRMS Business Education

Many at DRMS believe that changes in the world need not be implemented into the DRMS culture. Many say, "DRMS can simply continue on a path of 'business as usual.'" DRMS, however, cannot afford to stand still. Outside forces will not allow that. DRMS must integrate information technology and information systems to the limit to become the reuse, recycling, and disposal provider of choice. DRMS is the Recycling Control Point (RCP) for DoD. Although today, less than 10% of all property is received in place through electronic interface, more will be received that way in the future. IS/IT applications provide leaner, smarter, cheaper, faster and more efficient disposal than any other ways. To excel at what DRMS does and hopes to do, DRMS must integrate information technology at every level and IS/IT skills into the minds of each worker.










Only by reducing costs and increasing operation efficiency can DRMS return the greatest value to the warfighter and provide a positive contribution to the maximum defensive readiness to protect our national security.

You have now been exposed to an overview of computer technology, where it came from, and its basic connection to the defense mission of the United States. In later chapters, the specifics of DRMS systems, how they interface and how IS/IT serves the customers will be explored. You will learn how DRMS interfaces with both commercial and government customers. The impact of what is in DRMS' future will also be discussed. At the end of the program, you will see what leaders in your organization see in DRMS' next 5-10 years. You will find out why IS/IT will be at the heart of changes to come.

Chapter Two

Computer Technology and Systems basics: DRMS Uses IS/IT

Chapter Highlights

-  Computer architecture and the parts of a computer system including hardware, software and data processing.
-  What the Internet and the World Wide Web are and how DRMS is connected.
-  Networking and the technology and systems to support networks.
-  How information systems enhance information technology at DRMS.
-  How IS/IT supports workflow management in accounting, marketing, production, human resources, and research in Marketplace, Utility and Command at DRMS.
-  Information technology and systems and global competition.
-  IS/IT and organizational productivity.
-  The Internet versus Intranet and Extranet.
-  How DRMS uses computer basics in day-to-day operations.

Introduction

The focus of this chapter is computer basics. This chapter builds upon the first chapter, which introduced the dawning of the Information Age. Later, chapter three will address how DRMS applies computer basics. Chapter four will explain internal and external DRMS systems, while chapter five will deal with DRMS' future in IS/IT. In this chapter, you will learn about software, hardware and data. These three, along with a variety of networks, make up the parts of an information system. The World Wide Web and the Internet are also discussed so you can become more comfortable with how they operate. In every case, DRMS systems and web site are used to illustrate points. The explanation of IS/IT workflow management and how the information revolution has changed DRMS productivity and global competition is also in this chapter. By reading this chapter and completing class activities, DRMS employees will become more familiar with the "nuts and bolts" of IS/IT. Hopefully, you will become challenged to go the next step and use IS/IT more often at work and at home.

"Let's say you're going to a party, so you pull out some pocket change and buy a little greeting card that plays "Happy Birthday," when it's opened. After the party, someone casually tosses the card in the trash, throwing away more computer power than existed in the entire world before 1950."
John Huey in "Waking Up The New Economy," Fortune, June 27, 1994



The Computer Allows DRMS To:

- input information,
- process, or use, information,
- store information,
- display information,
- output information,
- and exchange information.



The Parts – Hardware, Software and Data

Computer architecture is how the whole computer system is put together. The parts of a computer system are the physical parts - the pieces, or boxes, with the physical parts - called hardware, the programs, or software, that make the hardware work, and the data or facts that are organized in a fashion to make decisions better and faster. Organizations with the right computer architecture, the right employees, and the right managers are leading in productivity. It is important to take time to look at each part – hardware, software and data.

Hardware

Hardware is the components that make up the computer, including the peripherals and equipment needed to tie it to networks.




Components Of A Computer: Definition List

A computer is a complex machine that contains many different components.

- ☐ CPU - The CPU, or central processing unit, is the "brain" of the computer. The CPU controls all the action that occurs inside the computer. The CPU contains the processor, which is one element that determines how "fast" your computer runs.
- ☐ Motherboard - The motherboard is the circuit board into which everything in the computer plugs. The CPU, RAM chips, and Cache all plug into the motherboard.
- ☐ RAM (Memory) - RAM, Random Access Memory, is commonly referred to as memory. Memory is measured in Megabytes, abbreviated MB. The computer uses RAM as a temporary storage area for the things it is using. Any data that

DRMS IS/IT: DRMS Business Education

you are using or inputting is temporarily stored in the RAM, where it can be manipulated and used by the computer. The more RAM you have, the faster the computer can perform tasks. Because of the amount of memory newer software uses, the minimum amount of RAM you should have is 32 megabytes [32 million bytes or bins of storage]. The standard now is becoming 64 megabytes.




-  Cache - Cache memory is a special high-speed memory designed to supply the CPU with the most frequently requested instructions and data. Instructions and data located in cache memory can be accessed many times faster than instructions and data located in RAM. The standard amount of cache installed on most computers is 256 kilobytes. The next step up is 512 kilobytes. The larger the cache, the more instructions and data that can be stored in cache. And the more instructions the data the CPU can access directly from cache memory, the faster the computer runs as a whole.
-  Case - This is the “box” in which all of the computer's components are assembled. There are two types of cases: the tower and the desktop. A desktop case fits nicely underneath the monitor, but takes up more space on the desk. The tower case can be placed on the floor to provide more room on your desk.
-  Disk Drives - Disk drives are a very important part of the computer. There are several types of disk drives, including hard drives, floppy disk drives, CD-ROM drives, zip drives, and tape drives.
 - ☒ Floppy Disk Drives - All computers have a floppy disk drive. It allows you to save information on a disk - an easy way to transport files and data between computers.

DRMS IS/IT: DRMS Business Education

There are two different sizes of floppy drives. The 5.25" floppy disk is not used very often anymore. It has been replaced by the 3.5" disk, which is smaller and can hold more information - about 1.44 megabytes.

- ☒ Zip Drives - A zip drive is similar to a floppy drive, but the disk can hold more data. A zip disk can hold about 100 megabytes of data. It is faster than an ordinary floppy drive but slower than a hard drive. A zip disk can hold an entire program, yet it is not much bigger than a 3.5" floppy disk.
- ☒ Hard Drive - The hard drive is where most of your programs are stored. The hard drive is normally inside the computer, so you will not be able to see it. However it is a very important part of a computer. Hard drives come in many different sizes of data storage. The standard size for a hard drive now is around 4 Gigabytes [a gigabyte is one billion bytes of storage]. The more programs and data you have, the more disk space you will need. Once again, more is better.
- ☒ CD-ROM Drive - Most computers now come standard with a CD-ROM drive. The CD-ROM drive is a device that is capable of reading both data and music CDs. The CD can store 650 megabytes of data, thus making it a popular format for distribution of large databases, software, and games. By using the CD format for distribution of and access to large amounts of data, valuable hard drive space can be conserved for use by other applications and programs.

DRMS IS/IT: DRMS Business Education

- ☒ DVD (Digital VideoDisk) - DVD drives are a new format of data storage. They are the size of a normal CD, and most have the capability of playing a normal CD. What is different about them is that they can hold much more data than a CD-ROM, which now makes it possible to store entire full-length digital movies. In the marketplace, the DVD is an intended replacement for both the CD player and the VCR.
-  Sound Card - Most computers come standard with a sound card, which allows your computer to reproduce sounds.
-  Video Card - The video card is the part of the computer that enables the computer to display information, data, and pictures to the monitor. The video card is also called a graphics adapter, display adapter, or video adapter.
-  Input Devices - Input devices are parts of the computer that let you input information and data into the computer and control some computer functions. The keyboard and mouse are examples of input devices.
- ☒ Keyboard - Using the keyboard is the primary way of inputting data into many of your programs. I am sure you know what a keyboard is, so I will not describe it.
- ☒ Mouse - The mouse is a very important input device because it makes getting around in your computer easier. The mouse controls an arrow which can be moved anywhere on the screen. The mouse is good for doing tasks such as moving and pointing to objects on the screen. There are several types of mice and several input devices similar to mice. The mouse was a key innovation for Windows “point and click” software.

DRMS IS/IT: DRMS Business Education

- ☑ Scanners – Scanners are devices that can read text, illustrations or photographs and, through the use of software, translate the information into a form that the computer can use. Scanners can be used to copy text to the computer, thus eliminating the need to retype the text manually.
- ☐ Output Devices - Output devices are the parts of the computer that let you see what you are doing. The two main types of output devices are the monitor and the printer.
- ☑ Monitor - The Monitor is a basically a TV that is specially designed to display the computer-generated pictures. Several different sizes of monitors are available. Most computers now come with a 14 or 15 inch monitor. This size is good for most peoples' needs. Seventeen or twenty-one inch monitors are also available. Larger monitors are better because you can view more information on the screen; however, they take up a great deal of room and can be much more expensive.
- ☑ Printer - A printer allows you to make paper copies of your documents. There are basically three different kinds of printers: Ink jet, or Bubble jet, Laser printers, and dot-matrix printers. Ink jet printers squirt little droplets of ink onto the paper. The ink dries almost instantly and the quality is almost as good as a laser printer. Laser printers produce the best quality print. The mechanics of a laser printer are rather complex. The printer must control a laser beam and the movement of the paper. In addition, it sensitizes the paper to accept the toner that makes up an image. It then fuses that image to the paper. The dot-matrix printer creates characters by striking pins against an

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ink ribbon. Each pin makes a dot, and the combination of dots form characters and illustrations. At DRMS, mostly Laser printers are used.

☰ Combination Input/Output Devices – These devices allow you to input AND output information from the computer. A modem is an input/output device, as are multifunction printers.

☑ Modem - The modem comes standard on most computers and is considered an input/output device as it can be used to send and receive data. If you want to send faxes or get on the Internet, a modem is required. The modem allows the computer to communicate with other computers through the telephone lines. This is called networking (explained in detail later). Modems are available in different speeds. The standard speed is 33.6Kbps. Kbps stands for kilobytes [or thousand bytes or bins] per second. This is simply the transfer speed of the modem. The 56Kbps modem is the fastest speed available and is a little faster than the 33.6Kbps modem.

☑ Multifunction Printers – Multifunction printers not only perform as a printer, but also include the capability to scan documents and photographs for input into the computer. In some instances, they also have the capability to send and receive faxes.

These are the hardware or components that make up most personal computers.

*“Today’s average consumer wears more computing power on their wrist than existed in the entire world before 1961.”
Ian Morrison and Greg Schmidt in Future Tense: The Business Realities of the Next Ten Years, 1994.*

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Software

There are two types of software: application software and systems software. Application software helps you perform a function, such as typing a letter. Systems software is what many call an operating system. It is the basic language and user interface that your computer understands and the software that controls use of the computer.

Systems Software

The operating system is systems software, or software required for application software to run, but is not specific to any one application. DRMS uses at least two types of systems software. The most common is DOS (Disk Operating System), the original systems software for IBM PC machines and IBM PC-compatible machines. Nearly all DRMS PCs and laptops have MS/DOS (Microsoft Disk Operating System) system software. MS/DOS is an enhanced DOS written by Microsoft Corporation. Windows NT, also invented by Microsoft, is a program that replaces the DOS. Windows 95, and more recently Windows 98, is widely used throughout DRMS to extend the systems software of DRMS' laptops to Internet and multimedia support. Windows NT is more powerful than Windows 95 or Windows 98 version of windows and allows for better networking. Windows NT is the DoD standard that DRMS utilizes. Macintosh computers have their own unique operating system. Unix is an operating system that runs powerful programs and computers. On UNIX systems, the system software is usually considered the software that comprises and supports the operating system. This software runs the machine, as opposed to the applications that run on the machine. Generally, most of the software that is added to a machine when the OS is loaded is considered system software, with the exception of some additional applications considered to be "bundled" software. DRMS widely uses both UNIX systems and Microsoft Windows

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NT systems software. DRMS has DAISY, MIDAS (see Chapter 4 for more information about DAISY and MIDAS) and other applications on UNIX operating systems. However, the web page, word processing and spreadsheets are run on Windows NT and Windows 98 systems software. The reason for this difference is that applications such as DAISY were written for DRMS, while applications like Microsoft Word are off-the-shelf software.

Application Software

Application software is a program that performs specific tasks for users. Word processing programs (Microsoft Word), spreadsheet programs (Microsoft Excel) and database programs (DAISY) are examples of application software. DRMS uses all of these. They come from companies like Microsoft, or they are custom-made. Custom-made software is developed for a specific purpose for a specific organization. DAISY is an example of custom-made application software developed specifically for DRMS inventory control.

“The factory (or government agency) of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment.”

Warren Bennis, Professor of Business, University of Southern California

Software suites are collections of application software from the same software company and may contain, for example, a word processor, a spreadsheet, a database, and a slide presentation designer. The suite used for this text, for example, was the Microsoft Office 97. This is the same program suite used on most of DRMS' PCs.

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Application software comes in many varieties. They can include everything from maps to navigate a ship to lists of all the telephone numbers you would ever need.

- ☞ Graphic programs have been developed to assist architects in drawing architectural plans or engineers in designing cars or even airplanes. These are called CAD [computer aided design] programs. There are also graphic programs that allow you to paint and create images. Graphic programs are used to help design the DRMS web page.
- ☞ Multimedia programs can integrate video, graphic, text and audio, and are used by motion picture firms and television stations to edit and create videotape programs. You can find these at many DoD web sites. They were used to help design the DRMS screen saver program.
- ☞ Web publishing programs and software are used to help develop the content of the web site.
- ☞ Groupware is a class of software that helps groups of colleagues (workgroups) attached to a Local Area Network organize activities. Typically, groupware supports the following operations: scheduling meetings and allocating resources, e-mail, electronic newsletters, and file distribution. Groupware is sometimes called “workgroup productivity software.”
- ☞ Artificial intelligence is the branch of computer science that attempts to model aspects of human thought on computers.
- ☞ Virtual reality is an artificial environment created with computer hardware and software and presented to the user in such a way that it appears and feels like a real environment. In other words, VR is an electronic simulation of real life.

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WORD PROCESSING PROGRAMS

Microsoft Word (used by DRMS) and WordPerfect are the most popular. DRMS desktop computers use these.

SPREADSHEET PROGRAMS

Microsoft Excel (used by DRMS) and Lotus are the most popular spreadsheet programs. DRMS desktop computers use Excel.

DATABASE MANAGEMENT PROGRAMS

These are the third most popular application software programs. They organize and manage data or information based in one central location. The DAISY program is a database management program.

GRAPHIC AND PRESENTATION PROGRAMS

Microsoft PowerPoint is the most popular. The author of this text used PowerPoint to make all the pictures in the text. It is widely used by DRMS to make presentations as well as overhead slides.

PERSONAL INFORMATION MANAGEMENT PROGRAMS (PIMS)

They are widely used. These provide a list of contacts or keep up with one's calendar or schedule.

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Hardware and Software Relationships

"... the higher level views of (computer) architecture are the foundation and must stand the test of time. The lower levels of architecture and entire technology architecture is unstable. Enterprises (like DRMS) should replace applications regularly as process improvements are found."
Melissa A. Cook in Building Enterprise Information Architecture, 1996.

DRMS is constantly updating its computer systems to meet new challenges and to impact process improvement. Examples are new systems for the RTD environment, new human resources programs from the DoD, and the new FLIS plus program that allows DRMS to update the FEDLOG with DLIS (Defense Logistics Information Service).

Data

Data is simply information.

"Data includes numbers, characters, and images that may be assessed by a human and may be input into a computer. By itself, data may have no meaning. However, when it is input into a computer and interpreted by a data processing system, then it may become meaningful to you. It then becomes "information". For example, 5anm0iet8sert9 is data. But, when it is output as 8950 Main Street" (a street address), then it is information." --- DRMS HQ

Electronic files contain data. Computers are better than any human in precise repetition of actions. Storing and retrieving data are among the most important things IS/IT can offer. DRMS IS/IT is a

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part of nearly everything DRMS does on a daily basis: input data, store data, analyze data, group data and then finally provide that information to whomever needs to know. Providing information quickly and at a reasonable cost for users or customers regarding excess and surplus property greatly increases DRMS' value.

Data is often organized in files and placed in folders or directories. These files can contain characters, numbers, images – almost anything can be data – put together into a document, either as a letter, report, book or paper. For example:

- ☞ A Microsoft Word 97 document would have a title followed by .doc to identify it as a document file. This text is named “Chapter 2 - DRMS.doc” in my computer.
- ☞ A worksheet file contains spreadsheets. Spreadsheets are lists of data in a tabular form. An example would be a spreadsheet of all property received by date arranged in columns. Next to each item there could be any information from condition code to demil code. These spreadsheets can be stored in a data file called a worksheet file. They have a title followed by .xls. Some of the charts for this text were Microsoft Excel files, and they had names such as “Computer Competency.xls” to identify them as spreadsheet files.
- ☞ A Powerpoint file, as called by Microsoft, has a title followed by .ppt. This is a powerful visual communication tool allowing the user to prepare for presentations in meetings, or as displays in reports. It is extremely flexible, allowing users to insert text and draw or insert pictures or images, such as a cloud or lightning bolt to emphasize the text.
- ☞ Finally, there are database files to keep track of data on thousands of pieces of information, such as all employees and their records. DRMS has a database for human resource purposes, as well as for inventory purposes. An example is

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DAISY, which holds all the information from all DD Form 1348 "turn in" documents.

Internet and the World Wide Web

The Internet and the World Wide Web are not the same. The Internet is the actual hardware: wires, satellites, servers, and computers that make up the physical network we tie into. The World Wide Web, on the other hand, is the multimedia resource on the Internet, which can be accessed by using the Internet. For example, the DRMS Web Page available at <http://www.drms.dla.mil/rtdinfo.html> is a site that allows you to interface with other Web site resources inside and outside DRMS on the Internet.

What is the Internet? The Internet is a worldwide network of computers sharing common links that allow you to gather information and to talk to others electronically.

What is the WWW? The World Wide Web (WWW) is the most popular Internet network that people use to find information. (It is so popular people often think of WWW and the Internet as the same. However, the Web is only one part of the Internet.) When you are on the World Wide Web, you click on highlighted or underlined words or pictures to link up to related information in other parts of the Internet.

What is a Web Site? A web site (or web page) is a document on the Web. Web pages can, and do, contain text, still and moving pictures, and sounds. They may also contain links that connect you to other Web pages. When you add up all the individual Web sites, you have the World Wide Web.

What is a Web Browser? A web browser is the computer application software used to make your way around the World Wide Web. Netscape Navigator and Microsoft Internet Explorer are the most commonly used web browsers.

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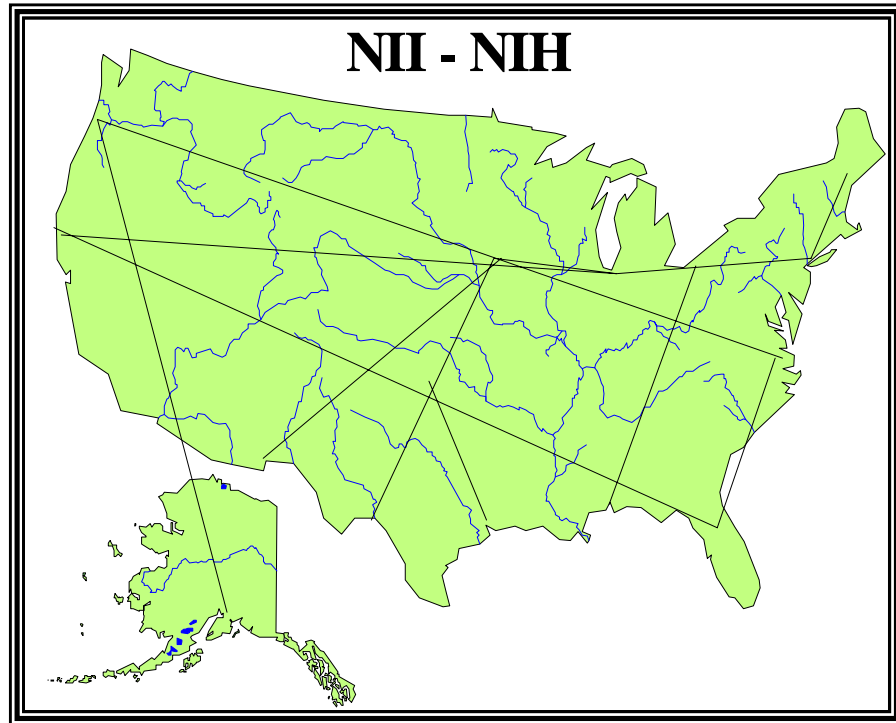
The World Wide Web, also known as WWW and the Web, was first introduced by the Center for European Nuclear Research in Geneva, Switzerland in 1992. Today, however, the web is used widely for unlimited commercial and governmental information interchange. Only 7 years later tens of millions are connected.

Getting Connected

The most powerful application of information technology today, inside or outside of DRMS, is connecting the microcomputer with other computers inside and outside the office. This creates a network of information being processed and opens the door to applications far beyond what had been imagined in the past. The information superhighway, or what is technically the National Information Infrastructure (NII) or the National Information Highway (NIH), is commonly called the Internet. The Internet is a physical connection of computers and networks worldwide. The World Wide Web (WWW), or simply the Web, is an Internet service that provides unlimited resources. For example, anyone on the Web can go to the DRMS web page and learn more about DRMS.

“If we had similar progress in the automotive industry (as the computer industry), today you could buy a Lexus for about \$2. It would travel at the speed of sound, and go about 600 miles on a thimble of gas.”
Randall Tobias, Vice Chairman of ATT in Joan Naisbitt, Global Paradox

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How do you get connected to the Internet? Even if you have a computer, you need a connection to the Internet to access the World Wide Web. All DRMOs worldwide have at least one Internet connection from a PC. There are three ways to gain access to the Internet using a phone line:

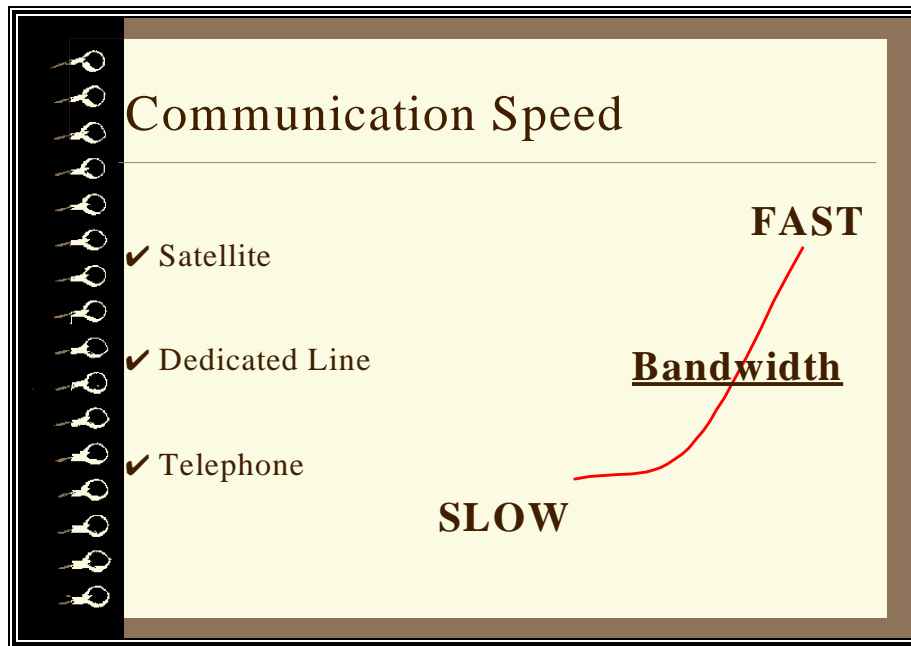
- ☐ Terminal Connection: Uses standard phone lines and a modem in your computer to access the Internet through an Internet Service Provider [called an ISP]. There are many providers including Microsoft Network, Prodigy, America Online, CompuServe, AT&T, BellSouth, as well as many local providers. These providers access the Internet for you through a gateway computer. They are already connected and provide a path for your phone line, or other connection, to connect with the NET (Internet). They are your ON RAMP to the information superhighway.
- ☐ Direct or Dedicated Connection: This is the best connection. It is expensive, but it is used by larger organizations that wish to have 24-hour continuous access. They are much faster than terminal connections. Many universities and industries use direct connections. The University of Tennessee and DRMS provide free access to their employees to the Internet through their LAN (Local Area Network, explained later).
- ☐ SLIP and PPP: A faster way is with special software, such as Serial Line Internet Protocol, Point to Point Protocol and high speed modems. It is less expensive than a direct connection but not as fast. It allows your computer to become part of the client server network. The provider is the host, or server, to the Internet, and you become the client.

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Terminal connections can be free but direct, or dedicated connections to the Internet can cost up to \$15,000 per year according to Computer Essential: Annual Edition, published by McGraw Hill in 1998.

Although most connections are made through phone lines, you can also connect through TV coaxial cable. The air itself can also connect computers to the Internet through microwave radio transmissions. Microwaves emit radio waves or rays similar to those that a radio station uses to transmit music. These microwaves can transmit data from one source to another. Microwaves can bounce off satellites and provide Internet connections around the globe. DRMS uses all these connections to deliver its web page to millions of people each year.







More on Data Transmission

Because every DRMS employee must communicate at one time or another using a computer, it is important to understand the characteristics and limitations in data transmission. Often, it may seem there is a problem in data transmission. However, it could be the characteristics of the data transmission causing the problem. We have come to ask our computers to do what was at one time an impossible task, and we have become impatient if that difficult task takes more than a few seconds. For example, a search of the entire worldwide DRMS inventory for a specific NSN used to take weeks. Now with a computer, a search can take just a few seconds. We get impatient sometimes if a computer task takes only a full minute.

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Several factors influence the ability of data to be transmitted:

-  First there is bandwidth, or bit per second (BPS) capability. Voice has the smallest bandwidth. The telephone line is used most often with the Internet and has a limiting speed of 9,600 to 28,800 BPS. Even though many computers today have a modem that can send over 50,000 BPS, many telephone systems are limited to less than 10,000 BPS. Leased lines like those used by DRMS to connect the 53 field HP (Hewlett Packard) minicomputer “boxes” to the corporate DAISY “box” can handle 56,000 to 264 million BPS. Microwaves and satellites can handle even more - up to 30 billion BPS. The type of connection makes a big difference - 10,000 BPS to over 30 billion BPS.
-  The connection may be either serial or parallel in nature. This means that either the bits of information per second (BPS) flow:
 - ☒ Serial - in a series of continuous flows. Internet phone connections are usually serial since they work better over longer distances.
 - ☒ Parallel - through separate lines at the same time. Parallel is usually used to connect a printer to a computer because it works best over a short distance.

Transmission Control Protocol / Internet Protocol TCP/IP

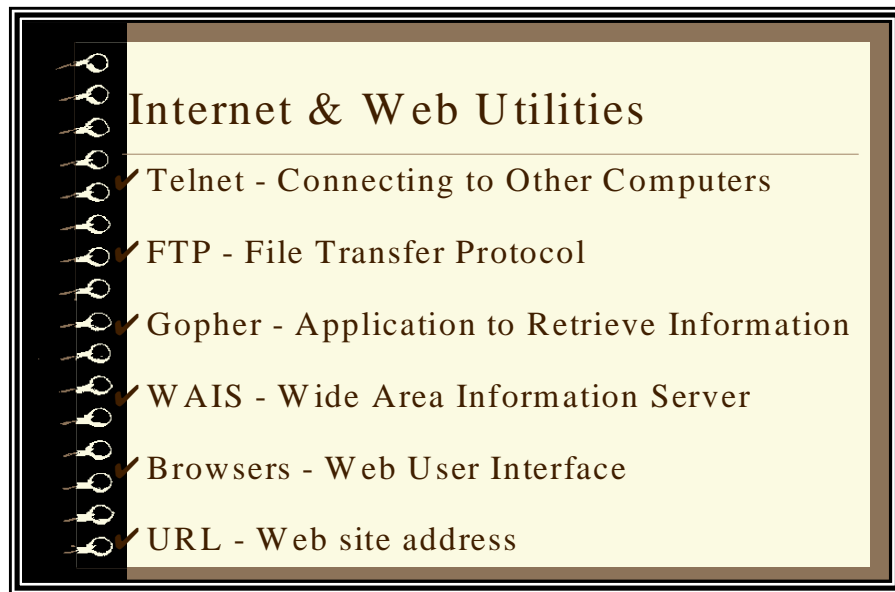
To establish an Internet connection, the computer must have the information necessary to communicate properly with other computers. In other words, it must have the proper computer protocols. Protocols are how computers talk to one another - the rules for exchanging data between computers. It is how the

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messages are broken down, sent and reassembled. If different types of computers are connected to the same network, then the protocols can become very complicated.

To make sure your computer can connect successfully, the correct set of network protocols must be installed. The most common protocol for the Internet is TCP/IP. Most on-line providers give you a step-by-step procedure on how to get your computer ready to connect to their provider. America Online and Prodigy, for example, send all new customers a CD that automatically sets up your computer Internet interface. All the user has to do is follow a simple set of instructions.


Internet and Web Utilities



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-  Telnet - Your computer acts as the terminal for other computers. Using the Internet, you connect to a host computer, or server, and you can run programs from that computer. There are hundreds of computers on the Internet with millions of files and programs, some of which can be shared for free (freeware); however, others require a fee for usage (shareware).
-  FTP - The File Transfer Protocol (FTP) allows you to copy, or download, files from others over the Internet. An FTP site is a computer that allows its files to be copied and shared.
-  Gopher - A software application that helps people on the Internet access computers on the Internet. In addition, it helps connect and retrieve information. Gopher sites generally have FTP and Telnet capabilities. They have menus to available resources on the Internet and provide direct links to those sites.
-  WAIS - Internet service which increases gopher's search capabilities. WAIS sites have the capability to use key words and key phrases to search the Internet for resources on a single subject. Unlike WWW search engines, described later, WAIS organizes specific subjects into categories while WWW searches are not organized under a major category.
-  Browsers - You access the WWW using a browser. The browser is an application that allows you to view information from the WWW, such as web site pages. The two most common browsers are Netscape Navigator and Microsoft Internet Explorer. Since it is the DoD standard used by DRMS, all DRMS employees should learn to use Internet Explorer. With this application, you can connect to remote computers, open and transfer files, or display images and text. It can also be used as an easy way to “surf” the web.

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 URLs - A URL, Uniform Resource Locator, is the address for the web site, like your zip code. www.drms.dla.mil takes you to DRMS' web page.

The Internet can be very helpful to any DRMS employee searching for more information to help describe turn-in property without an FSN. If you have a tractor, try using the Microsoft Explorer browser to find "Tractor descriptions."

IMPORTANT TIPS FOR "SURFING"

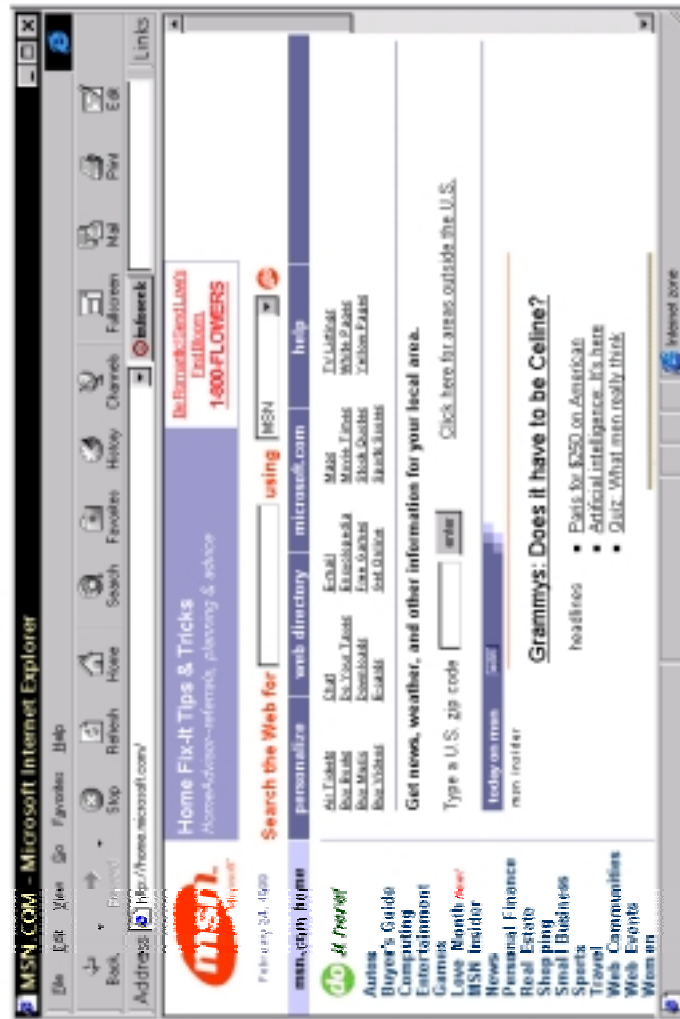
....or searching the Web using the Microsoft Internet Explorer.

1. Be as specific as possible.
2. Use as few words as possible, but be accurate.
3. Use words such as...and, or, not... to combine key words to help the search.

"... industrial economies of scale increase value gradually and linearly (like bigger factories) . . . networks, on the other hand, increase value exponentially (even faster)."

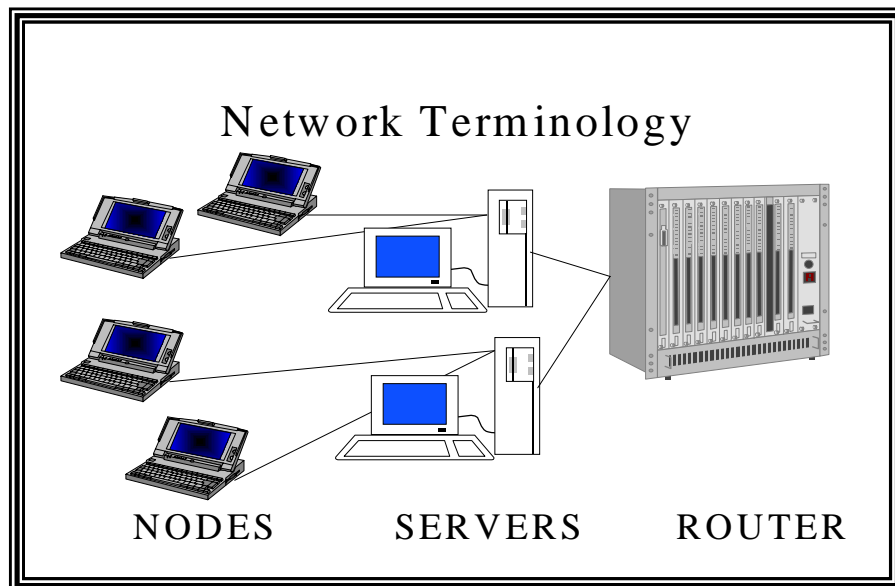
Kevin Kelly in New Rules for the New Economy, 1998

What is a Browser and a Web Page?



Networks

Networking and LANs, VANs, WANs and Servers




Like any other subject, computer information technology has a great deal of terminology unique only to this industry. Just like learning to speak German, you have to learn how to speak “Computer.” Many universities, as a degree requirement, allow you to substitute computer science for a foreign language. We have become so dependent on computers in our daily lives; we must add these words to our vocabulary or become quickly confused. At DRMS, we have become accustomed to acronyms, but the computer age has accelerated acronym use within the DoD, DLA and DRMS. LANs, WANs and other network terms are a part of that growing list of new vocabulary. Architecture refers to how something is put together. The network architecture explains

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how the network is arranged and how each computer within the network coordinates and shares information. A node is any device that is connected to the network. It could be a PC, a printer or some storage device. A server is a node that shares resources with other nodes. There are file servers, print servers, Web servers, communication servers, and database servers. DRMS uses all of these. In any event, simply said, a server allows for sharing of data. The Network Operating System (NOS) is the systems software for the network. DRMS uses UNIX and Windows-based applications, like Windows NT, as Network Operating Systems. A distributed processing system is a server[s] and has many users or clients [end users]. A host computer can be a large centralized computer such as the DRMS corporate HP that is connected to all the HPs in the field. The host computer can either be a mainframe or a minicomputer. In this case, as we said earlier, DRMS uses a minicomputer. A network consists of computers connected to each other. Many offices have these networks to share information technology and information systems. Many DRMOs are networked. The Internet is just a huge network.

Network Types

There are four major types of networks: Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN) and Value Added Networks (VAN). Because business is increasingly connected, many new buildings feature pre-installed wall connectors that allow for easy installation of a network.

 The (LAN) Local Area Network consists of computers tied together in close proximity, such as in one office or one building. Cable, telephone, fiber optic, or coaxial cable can link them. They usually connect to printers used all over the building. Most LANs have a server that centralizes all communications. DRMS uses a HP at the DRMOs as the

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server. Most LANs have a network gateway, which allows it to be connected to other networks.

- ☐ The (MAN) Metropolitan Area Network is a larger network than a LAN. It extends the network to a large city or large metropolitan area such as a university campus. This can easily be done with the use of cellular phones or car phones that can connect to microcomputers such as laptops or notebook computers. DRMS utilizes a MAN.
- ☐ The (WAN) Wide Area Networks can be countrywide and worldwide networks. The most widely used WAN is the Internet, but many companies, including DRMS, have their own dedicated WAN. The DAISY system is deployed via a WAN. The WAN allows for connectivity between computers worldwide. The Corporate DAISY, for example, is connected to 53 HPs out in the field, and they communicate continuously over the WAN.
- ☐ The (VAN) Value Added Network works as a store and forward mailbox. You can send mail to this mailbox and it will hold that mail until all your trading partners want a copy. Each VAN can be a contract between DRMS and a contractor. You can use VAN to track all transactions.

Network Topology

Networks are arranged in different ways. The arrangement, or configuration, of the network is called topology. The principal types of topologies are called hierarchical, star, bus (at DRMS called Ethernet), or ring.

TYPES OF TOPOLOGY

Star

Computers or other devices connected like points of a star to a central unit, usually a file server. Each of the linked computers would have access to the files and programs on the central server. Star topology is used frequently to connect microcomputers to a central unit that holds a central database for all users.

Bus

There is no file server. The computers are arranged similar to a line of buses. Each computer is connected, but each handles its own communication. A cable connected to all computers carries communications between users. Each user in the bus network can access files and programs from other computers on the network. In writing this book, for example, we used a bus network. This allowed everyone to use the same printer, access this file, add information, review and edit this manuscript. This also allowed us to save this document on many computers.

Ring

Computers are connected to other computers in a ring. No central server is used. Communication is simply sent around the ring until the message is received. This topology is uncommon but can be effective when the organization is decentralized or when the ring can provide a circular link to a mainframe. As in the other topologies, each can share files and programs within the configuration.

Hierarchical

A hierarchical network looks very much like a DoD organizational chart. The top is usually a mainframe connected to several minicomputers. They are, in turn, connected to several microcomputers. All of the computers share the programs and files needed from the mainframe. Each group of microcomputers is limited in access to the mainframe by the minicomputer to which they are connected. This network type is highly effective in a centralized organization.

Information Systems Enhance the Information Technology

DRMS deals with internal and external information systems daily in a variety of ways (explained in detail in Chapter 4). Each provides a needed resource to increase the productivity of the DRMS inventory for RTD and S programs. Keeping these programs operating smoothly and error free better serves the war fighters of The United States Military in times of war and in the defense of peace. DRMS information systems (explained in detail in Chapter 4) use the latest information technology, but they are simply communication links that connect you to databases far beyond your desk. The microcomputer, in most cases, is your vehicle. Similar to a car, it takes you where you want to go, inside and outside of DRMS. Information is needed to effect RTD and S and to help all DRMS employees make more informed managerial and operational decisions.

The information system within DRMS flows from people through procedures using software and hardware so the information systems can enhance the information technology. IS/IT works together to better organize and analyze day-to-day operations. As the size of the DRMS' database continues to grow, the need to search this database more easily and efficiently quickly increases. DRMS is constantly looking at better ways to organize IS/IT functions.

All levels within an organization use information systems. Managers, such as the DRMS Commander and his staff, use the database routinely to measure and analyze DRMS performance. Middle managers, such as DRMO Chiefs and their staff, use the information systems to keep up with their daily activities and to compare their performance with other DRMOs. Supervisors and professionals at every DRMO need to access information systems

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for one reason or another. They may need to keep track of equipment using EMACS (Equipment Management and Control System) or monitor environmental impacts with EAMS (Environmental Audit Management System). Workers themselves are the most important part of any management information system. Why? Because they touch the actual data, and input what everyone else in the organization is trying to understand. Each entry, for example, in the DAISY system requires great skill, effort and a tremendous amount of accuracy. These entries allow for every item turned in as surplus to be reutilized, transferred, donated or sold at its highest possible value. As it will always be said about computer systems, “. . . garbage in, garbage out!” In other words, the system is only as good as the data put in the system. One small mistake may not seem significant, but whenever one mistake is found, the confidence in the entire database and the entire organization is put into question. Getting accurate data into the DRMS systems is the most important job!

“In 1991, for the first time ever, companies spent more money on computing and communications gear than the combined monies spent on industrial, mining, farm, and construction equipment.”

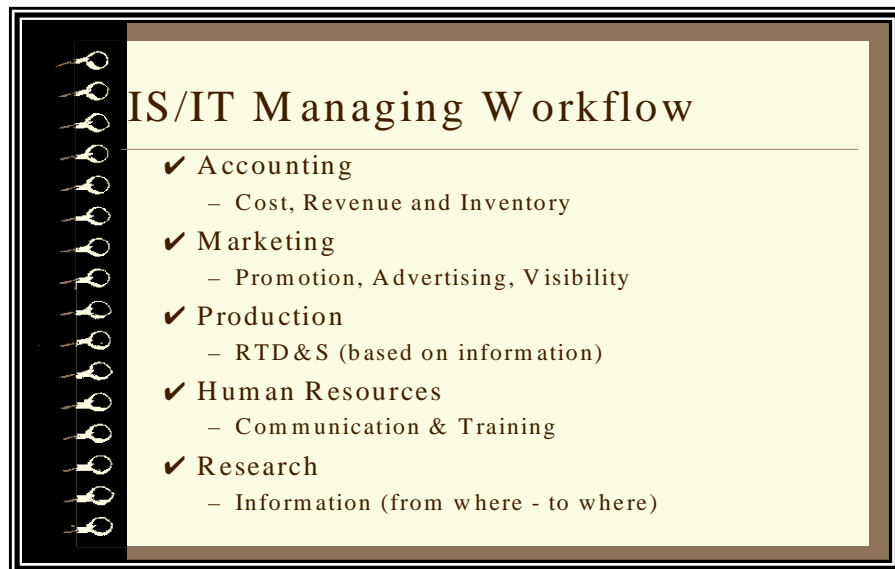
Price Pritchett in New Habits for a Radically Changing World, 1994

IS/IT Managing Workflow

Information flows throughout the organization. It flows up and down the organizational chain of command and sideways within departments. Handling the flow of information is the key to effective workflow management. The information system is a collection of data, hardware, software procedures and most importantly people. It is people that put the whole workflow

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management system together. At DRMS, computerized information systems keep track of transactions and day-to-day operations. They also support the flow of all information within the organization. By viewing the organizational structure, one can better understand how an information system can more effectively manage the workflow.



Every organization has five functional areas: accounting, marketing, production, human resources, and research. Each of the DRMS departments – Command (leadership), Marketplace, and Utility - deals with these five functions whether generated from within or outside their department. No matter how large or how small the organization, all five functions are essential. Information technology is the key to the smooth operation of the workflow within each of these functions.

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Accounting

Accounting keeps track of all assets (i.e. inventory), liabilities, revenues and costs. They pay the bills, record who has been paid and compile information for financial statements. Management goes to the accounting department to find out where all the money went from accounting information. Financial budgets and forecasts can be made. Information technology is key in recording and analyzing all the financial information being processed in any accounting department. A database is created as the department processes financial information. From that database, information can be organized in a suitable fashion for analysis, such as budgeting and forecasting. Without information technology, the job of sorting, organizing, and analyzing would be much more difficult. At DRMS, the financial and accounting operations are handled using sophisticated information technology and information systems that interface with numerous other Defense organizations.

DFAS-CO (Columbus), not DRMS, pays bills. DRMS, through DRMS-TR forwards the information DFAS-CO needs to pay our bills. --- DRMS-HQ

Marketing

The marketing of DRMS inventory on the Web includes promoting property, making property searches user friendly, allowing for on-line bidding and providing bid results. The Marketplace has come a long way to making this possible. The public can view photos of DRMS property; view and download catalogs of property by bid opening date, location, or commodity; submit bids online for property worldwide, using forms that can be easily accessed.

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Production

Production must continue day in and day out. The production at DRMS involves receiving inventory and either reutilizing, transferring, donating, selling or ultimately disposing of that inventory. Hazardous waste contracting and demil are also production. The workload depends upon the acquisition value of the property received, the tracking of that value and the tracking of the workflow by each location. The analysis of what has been done, as well as forecasting what must be done in the future, requires extensive use of IS/IT. Only with highly sophisticated applications of information technology can DRMS hope to keep track of the over \$20 billion worth of property turned in (acquisition value) each year. How to manage flow through various DRMO warehouses or through in-place sales, such as RCP, is an awesome task. As more of DRMS production is handled in place, DRMS will need information technology and systems to carry out the DRMS production function.

Human Resources

Effective human resources (HR) functions are key to a happy and energetic workforce. Information technology can help increase accuracy and improve human resource related activity performance. For example, benefits information can be available on-line. This alone can greatly improve employee HR communications and help correct or eliminate mistakes. The keeping of personnel files, along with the processing of information related to those files, is highly complex and sophisticated. Information systems are needed to make the workflow within HR effective.

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“...technology is radically changing the speed, direction, and amount of information flow, even as it alters work roles across organizations. As a case in point, the number of secretaries is down 521,000 since 1987.”

*Richard Tetzeli in “Surviving Information Overload,”
Fortune, July 11, 1994*

Research

Research is a part of any organization. There is a definite need for accurate, timely and informed research. Obviously, many DRMS systems are used for research. They compile and analyze data into a systematic organization that makes analysis easier. The problem is deciding what information is important and what is not. Better and more sophisticated information systems can organize and analyze information from a database. Yet, it will always be people who must organize, categorize and deduce from that information what is important now and in the future. DRMS must do extensive research not only to meet the needs of DLA and DLSC, but also to keep up with its own internal and external relationships. Research of customer needs and business practices is used in developing performance metrics. Information technology and information systems are extremely important in making that research effort effective and to help track the metrics or measures of DRMS performance.

No matter which department is using management information systems, the workflow in each department will become more dependent on IS/IT. IS and IT applications within each organizational function must be effective. Each level of operation within the organization must have its information needs met. Workers on the warehouse floor, supervisors, mid-level managers

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and top-level managers all need access to information that is easy to understand. The information flow must be organized in a way that makes sense for everyone. It should flow from the top down, from the bottom up, and side to side. Command must keep operational activities informed. HQ must be in constant touch with the field. The field must be constantly in touch with HQ. Personnel in the field must talk to each other. IS/IT keeps workflow moving in the right direction. Workflow and information systems are integrated effectively in an organization that operates well.

Information Technology and Systems and Global Competition

Every wave of technology has changed the way we live and the nature of business locally and internationally. Without telephones, automobiles and jet aircraft, markets would be limited to your local area. Prices would vary widely from place to place. No one would know prices anywhere else. If they were able to know the price, they would have no way to get there. If you were the only seller of butter in Florida, you would not worry about the competition. People who wanted butter would either have to pay your price or go without. Before global competition, supplies of products and services and the demand for them were limited only by consumer's ability to pay and the availability of substitutes. Generally, you competed very little, and most businesses had a monopoly. In a world without major transportation and communication routes, living standards varied from a world of great wealth for few to poverty and hardship for most.



With quick and cheap transportation, information and, as a result, products and services flowed up, down, and sideways. Around the globe, commerce increased and so did competition. As it is said, “if you won't do it somebody else will.” With the Internet and the World Wide Web, everyone has the access to what anyone else knows.

If you know how to access information, you can know anything. This has opened up what many call a worldwide village of commerce. The world is on to us and we are on to the world. Many fear this level of access and competition, and those fears are well founded. The monopolist or the bureaucrat wants no competition. The unethical would like to keep information a secret.

The world of worldwide free access to information keeps us honest, increases quality and customer service, and keeps prices as low as possible. Many would like to limit access. Others see access as the road to ever expanding worldwide free enterprise.

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The debate will continue. Nevertheless, all are concerned about the flow of information that is provocative and immoral. No system is without its problems.

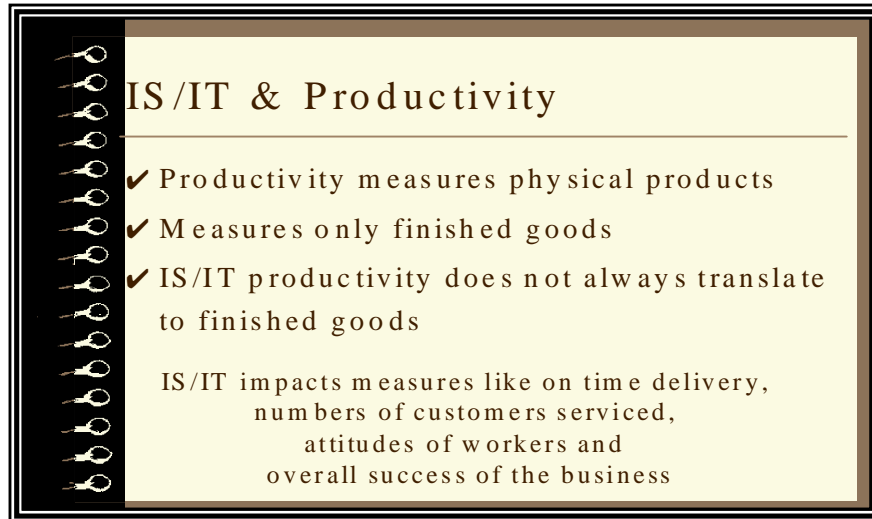
According to J. R. Levine and M. L. Young in The Internet for Dummies 5th Edition, 1998, The Internet and the World Wide Web means:

“More Shopping and Less Dropping!”

The Internet has continued to allow greater commercial and government opportunities. First, the smut dealers grew. Later, however, the honest business of government and commerce triumphed. Today, most business over the Net is honest commercial and government business. Global commerce means DRMS must update technology often to stay ahead of the competitors. From within government and outside of government, more players are competing for the same business. No longer is there only one source. The source may be thousands of outsources or even A76 (competition from inside and outside of government for what government had traditionally done, such as running a DRMO). The Internet makes it possible for DRMS to serve very specific "niche" markets and to greatly improve customer service. Application of information technology can make the operation of DRMS so efficient that competition from the outside will be difficult at best.

Global competition is reaching all-time highs. The interconnection of the world will only lead to greater competition worldwide. While all organizations will have to work better to stay in business, you - the customer - will continue to benefit.

Computers and Productivity



IS/IT & Productivity

- ✓ Productivity measures physical products
- ✓ Measures only finished goods
- ✓ IS/IT productivity does not always translate to finished goods

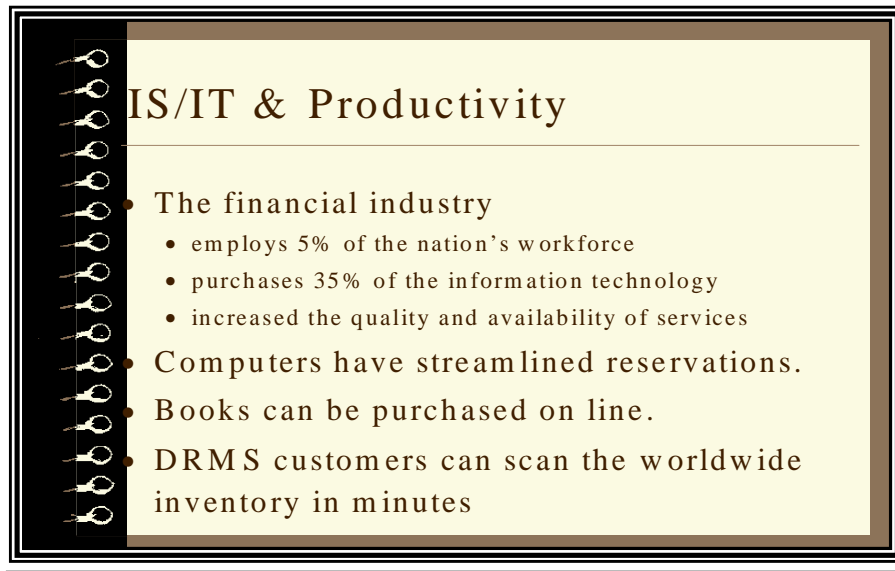
IS/IT impacts measures like on time delivery,
numbers of customers serviced,
attitudes of workers and
overall success of the business

A great deal has been said about what information technology and information systems can do, but most academic studies in productivity seem to show little or no measure of increased productivity. This is for many different reasons.

- ☞ One, productivity measured by the U.S. Department of Commerce is based on increases or decreases in numbers of physical products produced in numerous categories. The first Business Education Course explained productivity. The problem with this measure is that service productivity is not measured at all because it is not physical. Services are where most - over 50% - of Americans work today. Services are what most people want around the world. If service productivity were added to manufacturing productivity, productivity growth would be higher. DRMS is one of those services, and its productivity is hard to measure.

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- ☞ Two, productivity measures only include numbers of finished goods. It does not measure quality. Computer applications often improve quality, more than numbers of units produced.
- ☞ Three, computer productivity often does not translate into a monetary measurement. How does a firm know if it is more productive? Is it more productive if it has more satisfied customers and fewer clerical errors? Technological improvements may translate into a more profitable business, better jobs and wages for their employees, but not necessarily higher measurable productivity. The bottom line is IS/IT increases the performance and efficiency of an organization. The measurement of that is shown with increased performance measures such as on-time delivery, a greater number of customers, better attitudes of workers and the overall success of the business, which in many cases is survival. These improvements may not be measurable in terms of number of finished products.



IS/IT & Productivity

- The financial industry
 - employs 5% of the nation's workforce
 - purchases 35% of the information technology
 - increased the quality and availability of services
- Computers have streamlined reservations.
- Books can be purchased on line.
- DRMS customers can scan the worldwide inventory in minutes

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Some proof:

- ☞ The financial industry employs 5% of the nation's workforce, and purchases 35% of the nation's information technology. Information technology has undeniably lowered prices for bank and brokerage customers. It has increased the quality and availability of services including 24 hour-a-day ATM banking.
- ☞ Computers have automated reservations.
- ☞ Books can be purchased on-line.
- ☞ Academic and professional research can be done on-line.
- ☞ At one of Goodyear Tire and Rubber Company's largest plants, computers handle the inventory, storage and issue of all tires. That plant produces over 50,000 tires a day.
- ☞ DRMS customers can scan the worldwide inventory in minutes, whereas it used to take weeks.
- ☞ Passengers on Northwest Airlines can book tickets, fly, get frequent-flyer credits, and be billed without ever talking to anyone.

There are also problems with computers and jobs. First of all, computers create distractions when workers have to tinker with software, load programs, or fiddle with a program to get it just right. These distractions can make it seem the workers are not getting their jobs done. Second, while workers should be working, oftentimes they are "surfing" the Net. Third, when systems crash, or become non-operational, data can be lost and hundreds of hours wasted. Fourth, rapid change causes workers to be "out of date" almost as soon as they are trained. Computers also create stress, boredom, fatigue, depersonalization and even medical problems if the computer and its parts are not set up in an ergonomic, or comfortable, fashion. Some workers even feel like they work in an electronic sweatshop where the means of production is daily,

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unending input and output from a computer terminal. All these drawbacks must be considered when any organization designs and implements an effective information technology system. Workers must be involved to make sure that not only the needs of the job are met, but also the needs of the employees who make or break that system are met. DRMS is only as good as the information each and every worker puts into the system.

It doesn't matter whether it is your neighbor or a friend half way around the world; you can be connected 24 hours a day. The challenge is to try IT; it's like riding a bicycle for the first time. It seems impossible but as soon as you get the hang of it, it comes naturally.

Internet versus Intranet and Extranet

The Internet is the worldwide connection of computers in a web-like fashion. Each client must have a server that in turn connects with servers around the world. As mentioned earlier, the connections simply jump electronically around the globe until your message reaches the proper destination. Anyone can get connected to the World Wide Web.

An Intranet is a dedicated Internet used within one organization. Many companies, universities and government agencies have their own dedicated Intranet. This Intranet is closed and dedicated only to the organization's own staff. Stock brokerage firms like AG Edwards, Merrill Lynch and others have dedicated Intranets to allow all their stockbrokers to access confidential information and gain proprietary information to serve their customers. They do not want anyone else on their Net. Government agencies, such as DRMS, also have Intranets. When accessing the DRMS Web Site,

The Intranet

- ✓ Internet like structure within an organization
- ✓ Can be connected to the Internet
- ✓ Can use the Internet to cover distance
(internal pages of the DRMS W W W site)

The Extranet

- ✓ Used to provide selected data outside the organization
- ✓ Can use the Internet to provide the connection to the user
- ✓ Example: DRMS Inventory over the Web

DRMS IS/IT: DRMS Business Education

the user can gain access to the official site only with the use of a password. The closed site is, in a sense, DRMS' Intranet. It allows DRMS to share information with employees and others and limit that information. This allows for better communications and confidential sharing of sensitive information.

An Extranet is a private network that uses the Internet and common telecommunications systems to securely share information with employees, customers, suppliers and others. The Intranet is only for individuals inside the organization, but the Extranet allows access to a limited exclusive outside group. An Extranet requires security, or firewalls, to prevent access to the network by those who are not authorized.

Organizations like DRMS can use an Extranet to:

- ☐ Exchange data using Electronic Data Interchange (EDI).
- ☐ Share product catalogs with those "in the trade."
- ☐ Collaborate with other organizations on joint development efforts.
- ☐ Jointly develop and use training programs with other organizations.
- ☐ Provide or access services provided by one organization to a group of other organizations, such as an online banking application managed by one company on behalf of affiliated banks.
- ☐ Share news of common interest exclusively with those you choose to share it with.

Summary: DRMS uses Computer Basics

The computer age is upon us and every individual today has become dependent on the computer revolution. Even though we may not like this fact, we must accept it. Many consider that it was thrust upon us for some reason to help only a few at the disservice of others. In truth, the computer revolution occurred because it worked. It worked in making us more productive and more profitable in nearly everything we do. The systems and the networking of these systems have created a more complex set of information for each of us to learn. DRMS is set squarely in the middle of it because there is really nothing in the new computer revolution that is not applicable to DRMS. DRMS has a focal mission to be the recycling and disposal provider of choice for DoD. DRMS has coined the term “move information not material,” and what better way than through the computer revolution. In part one of this chapter, you have learned that “moving information and not material” is not as easy as it sounds. Computers have a terminology of their own due to the difference in their operating systems. While desktop PCs normally operate under Windows, mainframe computers use operating systems that are designed to access large amounts of data. This difference in operating systems requires programs that allow the PCs to access the mainframe systems. They are not all the same, nor are they connected to each other in the same way. This chapter was written to first, familiarize you with basic computer terminology and show you how these basics apply to DRMS. Second, this chapter was designed to help you see how basic computer information technology is linked to DRMS so you can begin to understand how and why DRMS systems operate and interface with each other. This will be discussed in detail in chapters three and four. Lastly, this chapter should help everyone who attends this course begin to

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see that IS/IT is important, not only from within DRMS, but elsewhere in any other job. IS/IT will become more and more of an integral part of what every one of us does.

Chapter Three

Computer

Technology and

Systems

Applications: DRMS

Appl ies IS/IT

Chapter Highl ights

- ☞ IS/IT in DoD organizations
- ☞ DoD activities directly related to the DLA/DLSC/DRMS Information Technology mission.
- ☞ Government use of the Internet
- ☞ Basic Word Processing
- ☞ The DRMS Web site
- ☞ The Virtual DRMO
- ☞ DRMS security and computer integrity
- ☞ Applications of the Web
- ☞ Practical uses of the Internet
- ☞ Internet Applications and DRMS
- ☞ Computer Technology and Computer Systems Applications and DRMS.

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Introduction

This chapter demonstrates how information technology and information systems have been and can be applied to DRMS as well as DLSC, DLA and the DoD.

Chapter one discussed the history of IS/IT and chapter two covered the computer basics of IS/IT. This chapter explains how and why IS/IT is applied at DRMS. The following chapter will explain the internal and external systems used daily at DRMS. Finally, chapter five will focus on how all of this relates to the mission and strategic vision of DLA, DoD and of course DRMS.

This chapter focuses first on the organization of DoD, DLA, DLSC and DRMS to better understand the chain of command in information systems and information technology policy and standards. Special attention is given to those Defense Agencies and primary Defense Agency field operations that interact directly with DRMS in information systems and information technology. The government use of IS/IT with the Internet, the World Wide Web, and dozens of other applications are explained. Each is related specifically to what DRMS does.

Practical suggestions in applying computer information and computer systems are given. Lastly, the chapter looks at many popular web addresses all DRMS employees can use to improve their work performance. After you have completed this chapter, you should become very familiar with how IS/IT can be and is applied at DRMS.

DOD ORGANIZATION, IS/IT

The diagram below illustrates how the Department of Defense is organized. This organizational structure is shown to help you understand the chain of command that determines the IS/IT you use everyday.

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The Office of the Secretary of Defense reports directly to the President of the United States. This office controls the Defense Agencies, as well as other activities within the DoD, which include the Military Departments. One major Defense Agency is the Defense Logistics Agency, which has two primary functional arms - the Defense Logistics Support Command and the Defense Contract Management Command.

DRMS is part of the Defense Logistics Support Command, along with the three Defense Supply Centers, the Defense Distribution Center, the Defense Logistics Information Service, the Defense National Stockpile, DLA Europe and DLA Pacific. Under the Deputy Director of DLA is the Chief Information Officer, who presides over the DLA Systems Design Center to coordinate information technology leadership within the command. Changes in the law, including the Klinger-Cohen Act, Executive Orders and other mandates, have forced DoD, DLA, DLSC, and the primary field agencies of DLA to draft information technology strategic plans that follow DoD technology standards. (Explained in chapter five.) The Office of Management and Budget, DoD Inspector General (IG), and General Accounting Office (GAO) all have roles to ensure compliance with standards and laws. DRMS has a Chief Information Officer at HQ in Battle Creek to manage DRMS IS/IT and ensure that all requirements are met.

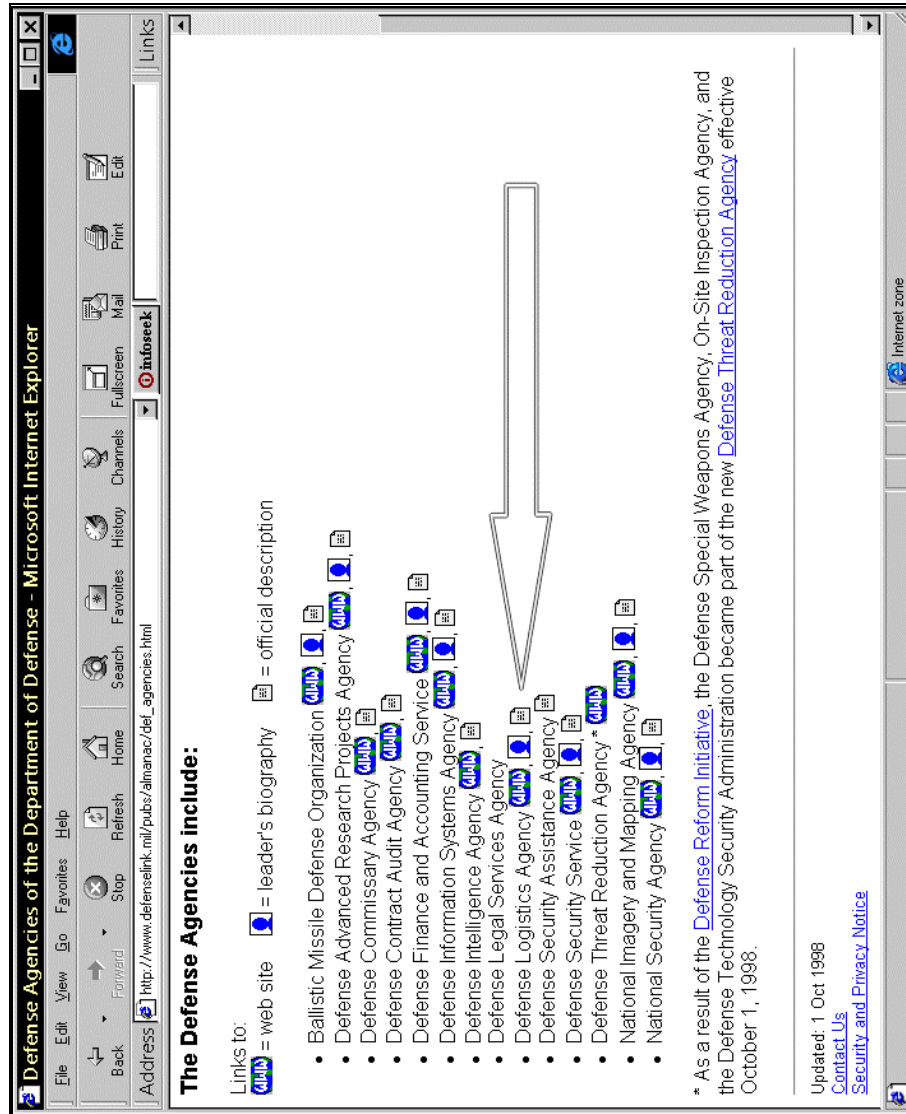
Along with Congress, the President of the United States, and the Government, the hierarchy listed below passes down Service/Agency Technology Policy and Strategy.

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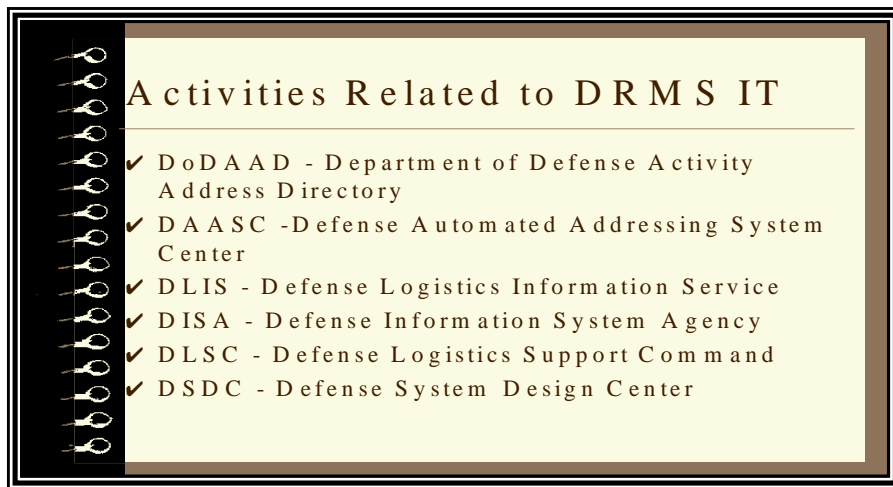
- Office of the Secretary
 - Unified Commands
 - Defense Agencies – (DLA, DLSC, and DRMS)
 - Field Activities
 - Inspector General
- Joint Staff
- Army
- Navy
- Air Force
- Marines
- National Guard
- Reserves
- Coast Guard

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Defense Department Activities Directly Related to DLA/DLSC/ DRMS Information Technology Mission

Even though policy is generated from the top down within DoD, agencies and primary field activities interface with each other and set up systems that interface with each other. The main DoD activities that interface with DRMS are listed below.



The Department of Defense Activity Address Directory (DoDAAD)

In the early 1960's, the Department of Defense (DoD) experienced major problems with routing logistics transactions. For example, during this period the error rate for routing requisitions for materiel to the CORRECT source of supply was around 30 percent. A task force was formed in 1964 to design and build a prototype system that would alleviate existing routing problems. This system is the Automatic Addressing System commonly referred to as DAASC.

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The Defense Automatic Addressing System Center (DAASC)

The DAASC, formed in 1965 and located in Dayton, Ohio, designs, develops, and implements logistics solutions to receive, edit, and route logistics transactions for the Military Services and Federal Agencies. DAASC maintains DoDAAD. Each part of the DOD determines the DoDAACs (Department of Defense Activity Address Codes). DAASC is the collection point for most DLA/EDI traffic. The Army, Navy, Marines, Air Force, Defense Agencies, NATO/Allies, General Services Administration, or industry can use the DAASC through an interactive network of gateways and databases. DAASC is linked to over one hundred DIS-similar databases, providing an inter-operative capability to service 177,000 customers worldwide without interruption.

Defense Logistics Information Service (DLIS)

This agency is located in Battle Creek Michigan and has been referenced in many places throughout the text. DLIS's overarching mission is to catalog the myriad parts used by the military services. They maintain twenty disposal support products on various media: CD-ROM, on-line, hard copy, and extracts. DLIS is responsible for the FEDLOG and works with DRMS using FLIS. DLIS uses the FLIS plus system to update and keep current descriptions of DoD property.

DRMS, under an ADP consolidation, will handle all end user computing, the Local Area Network (LAN), the Hewlett Packard Mid Tier Administration, Telecommunications and the Wide Area Network (WAN) access for all DLA tenants of the Federal Center and all DRMOs. All the computers at the various DRMS sites are connected through a WAN which is maintained by DISA.

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Defense Information Systems Agency (DISA)

DISA works on a common operating environment for all of DoD. Their core mission areas are the Defense Information System Network (DISN), the Defense Message System (DMS), and the Global Command and Central System (GCCS). DISA's headquarters is in Arlington, Virginia.

DISA Mega Centers

There are currently 16 DISA Mega Centers located in CONUS. DRMS mid-tier systems pass batch commands data to the DISA Mega Center at the Columbus AMDAHL computer, where it is processed and later pulled back to the mid-tier. Intransit and Small Arms Programs are resident on the AMDAHL, but within the next year will move to a DRMS mid-tier.

Defense Logistics Support Command (DLSC)

The DLSC is a major subordinate command of the Defense Logistics Agency. The DLSC includes supply centers, service centers, and the defense distribution center. The Defense Logistics Support Command procures, manages, stores, and distributes 4.1 million items for U.S. military customers, other U.S. federal agencies, and allied forces. The command also performs a wide variety of logistical services and serves as a full combat support partner with the Army, Navy, Air Force and Marine Corps. DRMS is part of DLSC. Because DLSC is directly over DRMS within DLA, DRMS' technology and systems are reviewed and regulated.

Defense System Design Center (DSDC)

This activity is a DLA Central Design Activity (CDA). DSDC develops, maintains and provides technical services for integrated automated information systems in support of DLA, DoD and other

DRMS IS/IT: DRMS Business Education

federal agencies. DSDC has been split. This function was delegated to DLSC-I (Information Tech). The remainder of DSDC was sent to the CIO office at DLA. Today, this activity's staff of 1200 computer professionals is headquartered in Columbus, OH, with satellite elements in Philadelphia, PA; Battle Creek, MI; Ogden, UT; Dayton, OH; New Cumberland, PA; Ft. Belvoir, VA; and Tracy, CA. As a fee-for-service organization, DSDC generated more than \$127 million in revenue in fiscal year 1997. DSDC designs, develops and maintains automated information systems that enable DLA to supply more than 2.7 million items and services to U.S. military units around the world.

DSDC works with DRMS on the DAISY system. DSDC also works with DRMS on the Daisy National Sales Program (DNSP) and the Contractor Inventory Reduction System (CIRS).

Government Use of the Internet

Almost every government agency uses the Internet extensively. It enables the agencies to exchange information, allows employees to research information, makes services available to the public and more. More importantly to DRMS personnel is how the government uses DRMS and the Internet. Listed below are parts of the DoD and how they interface with DRMS through the Internet.

"The emerging forms of technological structures involve changes in managerial responsibilities, communication and information flows, and WORK GROUP STRUCTURES (like the DRMO)"
Kalakata and Whinston in Electronic Commerce: A Manager's Guide, 1996

The Office of the Secretary of Defense (OSD) has used the DRMS Web Site to do research through the DRMS databases.

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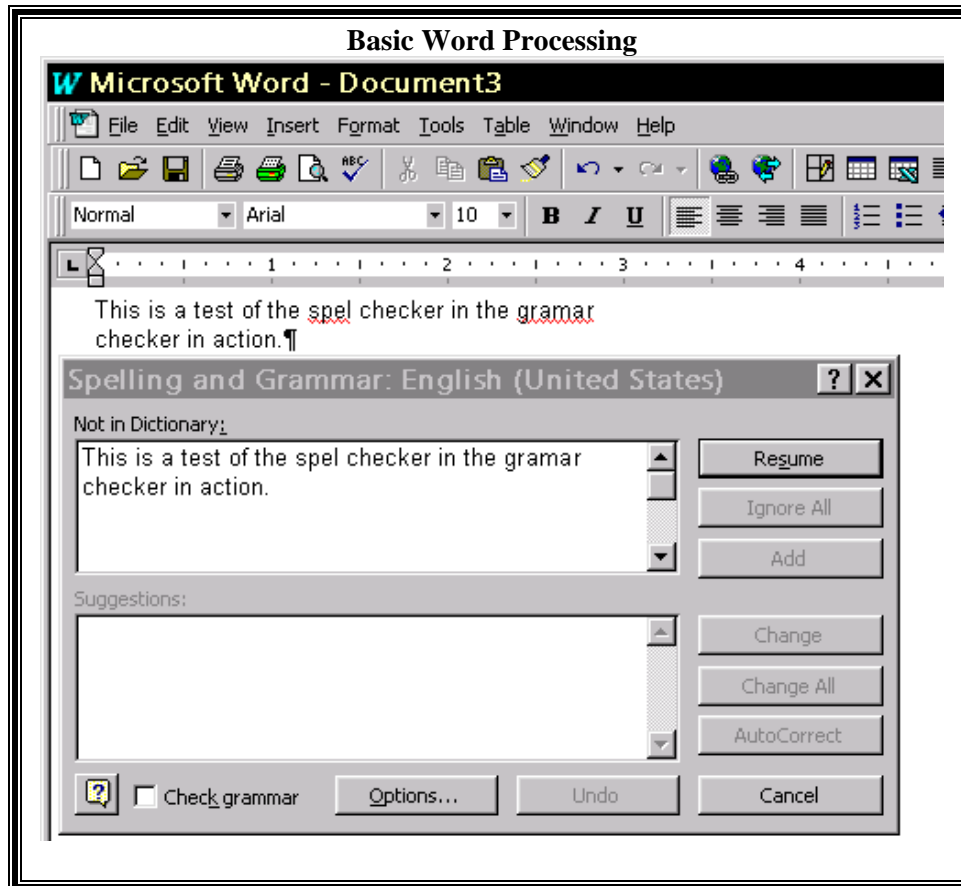
Information about disposal, as well as RTD and S operation of DRMS, has been made available using these databases. OSD also provides links to DRMS and dozens of other Web sites within the DoD. All military departments, from the Ballistic Missile Defense Organization to the Commissary Agency, can use the Internet as a way to access the DRMS web site. They can reutilize DRMS property by searching the worldwide inventory. The Defense Advanced Research Projects Agency (DARPA), who first funded the creation of the Internet as we know it today, helps to create better uses of the Internet with advanced research. This technology is used by DRMS. The Defense Contract Audit Agency (DCAA) posts contracts on the Internet and has access to contract information related to DRMS on-line. The Defense Finance and Accounting Service (DFAS) interfaces with DRMS applications systems when dealing with contractors and DRMS generators. These interfaces can take place over the Internet. DLA communicates with DRMS via the Web. DISA communicates all data files through an Internet, Intranet or Extranet. The Defense Security Service uses the Internet to do research using the DRMS Website. In addition to the agencies mentioned, most government agencies will use the Internet to communicate with DRMS and to search DRMS inventory. The Internet has been, and will continue to contain, a vital component of the DoD efficiency and readiness.

The DRMS policy on using the Web/Internet (DRMS-D 5200.5) is important to note. It explains uses of the Internet and the World Wide Web that are permitted on the job. Every employee should become familiar with this policy. This document can be found on the internal DRMS Home Page, <http://www.drms.dla.mil/>. After selecting "DRMS Internal," select "Publications."

Basic Word Processing

Even though we have demonstrated that your microcomputer is connected to the World Wide Web, most will simply use computers for word processing. That task, in itself, is highly complex. The English language is among the most verbose in the world. Spelling and grammar use is not just an art, but a science. The word processors used to assist us in writing, printing, or sending what we write are primary functions of computers. Computers can effectively hold millions of vocabulary words and millions of examples of correct grammar and punctuation. Computers are assisting us in more and more ways to improve our communications. The Microsoft Word 97 program, installed in most DRMS PCs, has a built in, highly sophisticated spelling and grammar check function, and a thesaurus to find new and interesting words. Word 97 can correct spelling and grammar and format, size, align and print your documents better than any previous MS Word program. Word processors make it easier for the average individual to do a better, more exact job of communicating. Word processing, for most, is the first step in using computer technology. Once you have used a word processor, it becomes hard to imagine communicating any other way.

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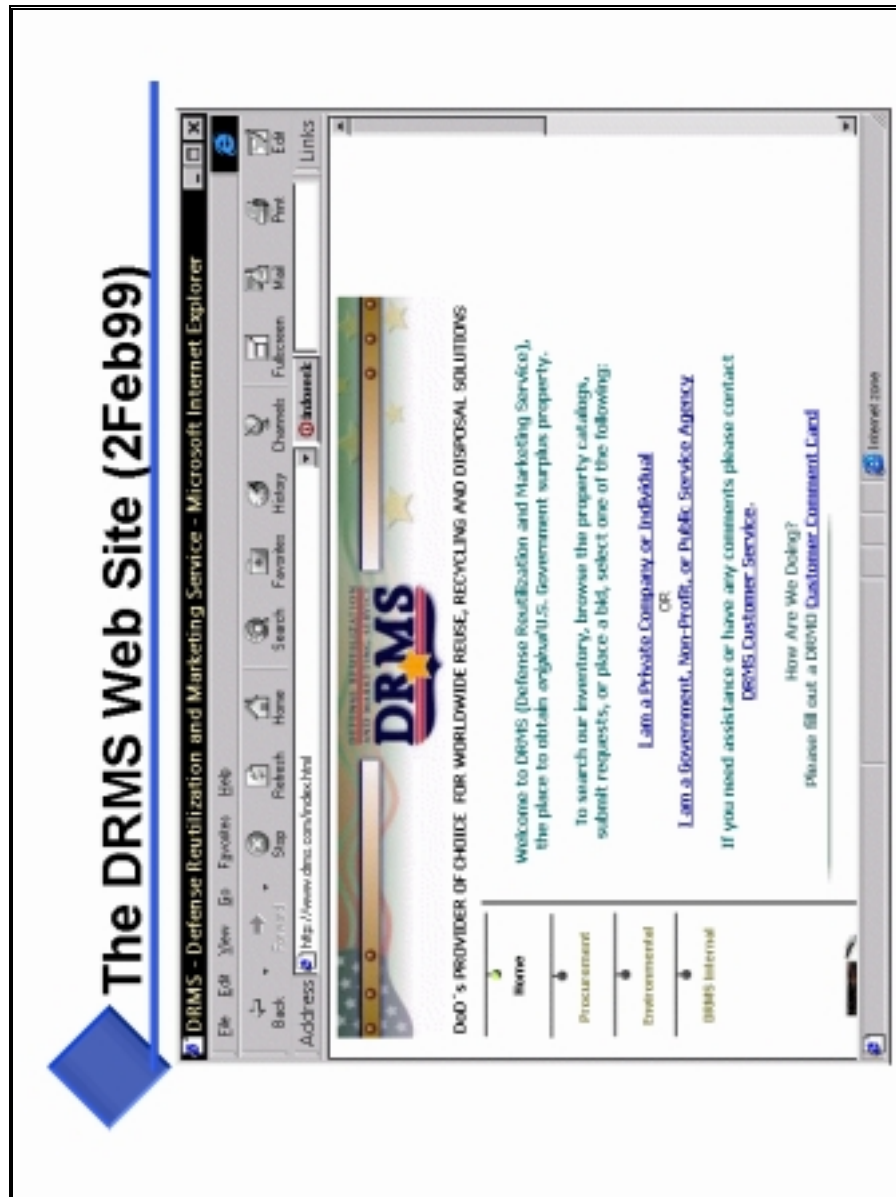
Commercial Use of DRMS Web


- ✓ How do various commercial groups use the DRMS Web site?
 - Online Bidding
 - Contractor Inventory Redistribution
 - Disaster Relief
 - Publications/Guidance
 - Contacts
 - Other uses

Government Use of DRMS Web

- ✓ How do various government agencies use the DRMS Web site?
 - Reutilization, Transfer, Donation, and Sales
 - Disaster Relief
 - Publications/Guidance
 - Contacts
 - Other uses


DRMS IS/IT: DRMS Business Education





The Virtual DRMO

- Receipt in place?
- Disposition in place?
- What does this mean to a DRMO?
- What does this mean to DRMS?



The DRMS Web Site

The beauty of the whole system is uniformity. Once you are connected, the future applications are unlimited.

The best way to understand how to use the DRMS Web site is to access it. The DRMS web site address is <http://www.drms.com> (or <http://www.drms.dla.mil>). The .com address was set up to stress communications with commercial firms and individuals and to show them the DRMS services 24 hours a day, even when military traffic is high. The .mil address was the first to be set up for DoD users. The site is self-explanatory and provides users, both military and civilian, a means to access the total services of DRMS. A demonstration CD is available from DRMS to try the Web site, even without an available Internet connection. Many people wonder why DRMS has a Web site. The answer is obvious; it not only allows for ease of interface between DRMS systems, but it opens instant worldwide communications with everyone inside and outside of DRMS. DRMS strives to move information not material and there is no better way than the World Wide Web.

The Virtual DRMO

Some think that all DRMOs can be replaced by receipt, reutilization, transfer, donation or sale done with inventory in place. This means no warehouses, no forklift operators and possibly only small national and regional offices to run the information systems and the information technology that supports them. Certainly, industry has proven that a virtual warehouse is possible. Amazon.com is a shining example (www.amazon.com). Visit their web site at that address, and you will find a multibillion-dollar company, a sweetheart of Wall Street. The company operates with nearly everything on-line and is a virtual bookstore

DRMS IS/IT: DRMS Business Education

and music warehouse superstore. Can DRMOs become virtual stores and function exactly like existing DRMOs? RCP has proven that, to some extent, a virtual DRMO is possible. Many items can be received, disposed of, or recycled in place. Property could be bar-coded in place and put into the DAISY system in place with remote computers. Similar to radio-operated computers you see when returning a rented car, nearly everything could be handled electronically.

Some say, however, that the customer must actually see and feel the property first. The property has to be stored somewhere; therefore, warehouses will continue to be required. However, they may not be so numerous or even belong to DRMS in the future. DRMOs may become brokerage houses, rather than physical warehouses, and their main function may be keeping track of electronic inventory records, and most importantly servicing customers through partnerships that provide them the most cost-effective means. DRMO personnel may have to become more expert at what they do. They may be required to visit and service customers regularly to explain more about an inventory they cannot see. DRMO personnel may spend little or no time actually warehousing the physical inventory. They may spend a lot of time matching property with customers, and vice versa, using the World Wide Web.

Other electronic innovations have also added to the possibility of a virtual DRMO. Take AIT (Automated Identification Technology), for example. Items can be bar coded with transmitters so the property indicates where it is and how much is left. Physical activities are reduced and records become automatic. DoD already has AIT (Automated Identification Technology) systems in operation. Greater visibility of property means more accuracy and more confidence in DRMS' ability to meet its mission, and reduce cost.

DRMS IS/IT: DRMS Business Education

Is there a place for you in the DRMS of the future? The computer never was responsible for making fewer jobs in society, only very different jobs and a job skills shift. Those with the right skills and attitudes become very valuable to employers, while others find it hard to keep jobs. It is your choice of which one to become. This course will help you become more valuable. Jobs receiving property in place, handling customer service, and operating and maintaining new information systems and information technology will require new skills. Managing information, not material is a very new skill.

DRMS Security and Computer Integrity

Security is a major concern in any organization, not only at DRMS. A computer virus is just that - it infects your computer. "Hackers" (computer experts with bad intent) create viruses. They can be harmless just printing a message such as "surprise," or they can completely erase your hard drive. This is much like human viruses that can just make you sneeze or they can kill you. Viruses can be carried in a floppy disk, a program or in an operating system, much like a human virus that can be carried by the air, fluids, or direct contact. Your computer can "catch" a virus when you open or load a program into your computer and the virus is attached to an "executable file," which usually has an .exe extension. Please keep this in mind when you get an e-mail with a MS Word document attachment or any other program attachment. Once you open that attachment, you are telling your computer to execute the Word program, which lets the virus in your computer. Viruses cannot come into your machine via the Internet unless you open an executable file sent to you. Viruses also come in from floppy disks you use to load information into your computer.

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DRMS uses virus-scanning programs that not only “clean” machines, but they also check every new document for new viruses and clean them out before they do damage. The most common virus detection program used by DRMS today is called McAfee VirusScan. However, as in most cases, when we fix one problem another arises. This is also called "Information Warfare."

"Information warfare" is a significant disruption or harm to information systems or communication networks to achieve political goals, economic espionage, sabotage, or otherwise harm operations or readiness. DoD is dealing with a growing threat arising from the world's dependence on information systems and technology. Some intrusions may be highly organized and sophisticated, and could pose a very real threat. This is one reason why security of our systems is so very important.

A bug is no longer in your bed nor a virus in your throat; both have infected our computers. Instead of using bug spray and medicine, we must SCAN to disinfect and kill the disease in our metal boxes!

Security is also an issue at DRMS. The system of passcodes and passwords at DRMS is designed to prevent information from getting into the wrong hands and prevent tampering with data. These passcodes work much like a key to a locked car. Without the key, you can't get into the car and you can't drive it. Without the proper password and passcode you can't get in, and you can't use the information. “Hackers” can find ways to break and bypass codes. As the codes and security systems become more sophisticated, so do the potential adversaries to the secure system. DRMS is constantly working to improve that security.

More can be learned about viruses and what to do about them at <http://nai.com/products/antivirus/virusscan/default.asp>.

Electronic Data Interchange (EDI) and Electronic Commerce (EC)

The DRMS environmental mission (see home page www.drms.dla.mil/newenv/index.html) has embraced EDI and EC. The Environmental Reporting System (ERS) is Web based for all generators to query disposal data. Qualified facilities and transporter listings are on the DRMS Web site. The World Wide Web is used for billing, fund codes, and much more. EDI sends delivery orders electronically to generators. A new Hazardous Waste BOSS (HW BOSS) has been demonstrated using EDI, eliminating tons of audit trail documents and contract payments are quicker. "The entire DRMS disposal process could go paperless by the year 2000," according to the DRMS web page www.drms.dla.mil/newenv/html/hw_disposal.html#mos on 9 March, 1999.

Email is a DLA system that allows users to do one-stop "mall shopping" for property throughout DLA. Email can be found on the DLA home page at <http://www.dla.mil/>. Select "Buying and Selling," and then "Electronic Mall." The system lets users either search all of DLA by NSN, or search by a specific area. One of these areas, "Reutilization," takes the user to the DRMS home page, where the DRMS property search functions can be accessed.

DRMS is currently using EDI to transmit Hazardous Waste (HW) Delivery Orders to our commercial HW contractors. More transactions are planned for the future, including: Delivery Order Modifications, Manifesting and Invoicing. The Base Operations Support System (BOSS) Hazardous rehosting must be finished before additional EDI transaction sets may be implemented. DRMS employees can learn more about these EDI initiatives by visiting the Procurement page at <http://www.drms.dla.mil/newproc/index.html>.

Electronic Mail

E-mail is a new means of information exchange. E-mail allows you to communicate using electronic letters; these letters are sent and received on computers. Unlike any other form of messaging, e-mail allows you to not only send text but also to attach all sorts of files. These files can be spreadsheets, tables, pictures and even Web Pages. E-mail is easy to use and applications are limited only by one's creativity. It allows you to save a great deal of time retyping. E-mail sends exactly what you want to send, and can be used to send copies to as many others as you like at the same time.

An e-mail address such as benny@drms.dla.mil has a username (benny) and tells you where he is, or @. This is the domain. In his case, it is DRMS. Then, you have the domain zone .mil meaning military. The current main domain codes are:

United States Zones:	1.	com	commercial
	2.	edu	educational or research
	3.	org	other organization
	4.	net	major network center
	5.	gov	government
	6.	mil	military
New Global Zones added in 1998:	1.	firm	business
	2.	store	business offering goods to purchase
	3.	Web	activities related to the World Wide Web.
	4.	arts	cultural and entertainment activities
	5.	rec	recreation and entertainment activities
	6.	info	information services
	7.	nom	names of people
	8.	is,uk	country zones like Iceland (is) and the United Kingdom (uk)

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Make sure when using e-mail, to use “Netiquette” or the etiquette you should follow when talking to others electronically. Remember that a message can be copied and sent to anyone and you don’t want to be misunderstood. A few simple words of advice.

1. Keep messages as simple and straightforward as possible.
2. Try to leave out emotions or anything harsh. Use language that reads like directions.
3. Keep your line length short so people can read it easily.
4. Before sending an e-mail, check your spelling, grammar and punctuation. DRMS Microsoft Outlook e-mail programs have spelling and grammar checks.
5. Remember not to take anyone else's information and pass it along without the proper permission. Most printed information and information from the Web is copyrighted.

“Pointless and excessive outrage in electronic mail is so common that it has a name of its own: FLAMING! It makes you look like a jerk.”

J.R. Levine and M.L. Young in The Internet for Dummies 5th Edition, 1998

Discussion Groups

DRMS, like many other government agencies, uses discussion groups to "get the word out." The current DRMS Commander offers regular discussion groups via the Internet and employees have been sent information on how to hook up to the Internet. These discussion groups are an excellent, inexpensive way to get employees to talk to each other. However, on the Net, many other discussion group opportunities exist.

- Mailing lists, for example, are one type of discussion group. Star Wars fans can connect with majordomo@peak.org, or

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Ford truck enthusiasts can e-mail fordtrucks80uprequest@lofcom.com to join the mailing lists. Once you become a member of one of these lists you can expect e-mail from others on that same list.

- Newsgroups are the most popular type of discussion group. Newsgroups use a special network of computers called UseNet. There are over 10,000 different news groups organized into subject areas. UseNet holds all the messages. You can access messages on the topics of popular choice.
- Chat groups are becoming very popular and are similar to the DRMS discussion groups. DRMS has an on-line commander's chat capability with all DRMS employees. To participate, you simply join a chat group on-line. Others in the chat group can communicate with you immediately so you can carry out a typed conversation with strangers or friends on topics of similar interest. Most major providers, like America Online, have chat capabilities.

Be careful whenever you give out your e-mail address. Remember; when you give out your secure address people can communicate with you anytime. This can load your computer with junk mail you may not want.







HAVE A COOKIE?

A cookie is a chunk of information from a website asking for information from your computer files without telling you about it. You can track what happened on your PC in a file called Cookies.txt. Take a look at your COOKIES!

Note: Please refer to DRMS-D 5200.5 Web/Internet Policy for authorized use of the World Wide Web.

Web Utilities

Web utilities are programs that work with your browser to increase its capabilities.

-  Plug-ins automatically load into your computer and work with your browser. Most web sites require at least one or more plug-ins to operate effectively.
-  Helper applications help run independent programs that can be accessed from your browser.
-  Off line browsers can help by downloading large documents, such as HTML documents. The DRMS Web Site is in HTML. Off line browsers can help you automatically store web pages so they can be viewed later, even when not connected to the Internet. Some of the popular off line browsers are InContext, FlashSite and Teleport Pro.
- ☒ HTML = Hypertext Markup Language, it is a programming language for document files used to display Web pages. HTML is the language computers talk to show you the Web page. The DRMS web page is an HTML file.
-  An information pusher is a web utility that searches for and downloads only items of interest to you. You can select your areas of interest, called channels, and they will automatically send these items to your hard drive.
-  Off line searches are a means of initiating several search engines simultaneously. It sorts, eliminates, duplicates and gives you one listing.
-  Filters are another Web Utility that can be used to eliminate certain types of sites from being accessed. A filter stops individuals from accessing sites that may be destructive, unethical or even immoral as determined by the user.

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Applications of the Web

Info. On Web Site Uses		
Job Hunting	www.usajobs.opm.gov www.hroc.dla.mil/JOAs/JOA www.doi.gov/octc www.home.microsoft.com www.drms.dla.mil	Federal jobs and career information, DLA jobs, Career management, general employment, and DRMS job hunting service
Sports	www.espn.sportzone.com	Compare to the DRMS Web Site
Encryption and Systems Safety	www.nai.com/default_pgp.asp	DRMS, does not use encryption to secure transmissions but this site can be used to compare to the DRMS security measures
Virtual Shopping Mall	www.shopnow.com	DRMS can use this site to compare the DRMS Web site and the DLA Email
Virtual Libraries	www.ipl.org to	DRMS employees can research any DRMS related topic
Personal Digital Assistants	www.yahoo.com	Can help DRMS employees improve time management skills
Ticket Master	www.ticketmaster.com	Inventory ordering site, compare to DRMS inventory ordering
Keeping Track	www8.zdnet.com/products/pimuser.html.	DRMS employees can learn to be more efficient
Presentations	www.microsoft.com/products/prodref/127_ov.htm	Explains Microsoft PowerPoint Can be used to make more effective presentations.
Using Software Programs	www.microsoft.com/office/autodemo/welcome.asp	Explain how to use software apply to your job.
Creating Web pages	www.killersites.com	Learn about sites to stay competitive.
Free Software	www.shareware.com	Tutorials and self help courses for DoD standard software
Keeping up to Date	www.wired.com/news	Evolving technology and what it may mean to DRMS.
Y2K	www.yahoo.com www.hotbot.com www.excite.com www.drms.dla.mil	Learning about Y2K and the DRMS contingency.
World Wide Weather	http://www.weather.com	Help plan TDY travel

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Investing	http://www.ndb.com http://www.sec.gov	Financial information about many of the retail customers and firms who do business with DRMS.
Health and Nutrition	http://www.eatright.org/ http://www.drms.dla.mil/	Health is essential to being a productive worker at DRMS.

Search Engines

DRMS and all DoD users can “surf” the net with Microsoft Internet Explorer using many of the search engines available on the Internet. Listed below are some popular search engines.



Web Searching

- ✓ AltaVista (www.altavista.com)
- ✓ Argus Clearing House (www.clearinghouse.net)
- ✓ Deja News (www.dejanews.com)
- ✓ Excite (www.excite.com)
- ✓ HotBot (www.hotbot.com)
- ✓ Magellan (www.mckinley.com)
- ✓ Northern Light (www.northernlight.com)
- ✓ Yahoo (www.yahoo.com)

It doesn't matter whether it is your neighbor or a friend half way around the world; you can be connected 24 hours a day. The challenge is to try IS/IT; it's like riding a bicycle for the first time. It seems impossible but as soon as you get the hang of it, it comes naturally.

Chapter Summary and Conclusions

The Internet, the World Wide Web and the application of IS/IT have closed doors for some but have opened doors for many more. Many look at the advent of the information age as a curse and a complexity they will never overcome or understand. The truth is that IS/IT offers a much easier and simpler way to communicate and exchange information anywhere. It offers new opportunities for DRMS, and the challenge is to continually upgrade systems and data interfaces to have more application on the World Wide Web. In this chapter, you learned how each DRMS employee can use the World Wide Web, and what the WWW offers for each employee in the future. Basic applications and hands-on experiences are part of this important training in DRMS IS/IT.

The Internet is simply a worldwide connection of computers, resembling a giant spider web with all of the computers connected together. From its military research beginnings in a defense agency (the Defense Advanced Research Project Agency), the Internet has evolved into a tool and a necessity for all of us. Internet technology and the use of the Internet for military and civilian applications continue to grow and add to the need for every DRMS employee to subscribe to the school of “life-long learning.” The next chapter focuses on the specific internal and external information systems used on DRMS information technology.

Chapter Four

Computer

Technology and

Systems Interface:

DRMS Internal and

External Systems

Chapter Highlights



How computer systems interface at DRMS.



Types of DRMS support and application systems.



Types of DRMS production application systems.



Types of DRMS operational systems of the future.

Introduction: Computer Systems Interface at DRMS

There are over 300 systems from within and outside DoD, DLA and DRMS that interface with DRMS on a regular basis. Many are written in different operating systems (computer languages), and many are housed on different hardware. Some share information, and some work off independent databases. In many cases, these systems were not designed to communicate with one another. Remember, DAISY is a Unix system and the Internet, for the most part, is Windows-based; therefore, the interaction of the two requires great technological expertise. The solution may seem simple, but in reality it is nearly impossible to create a simple interface. Even if a basic interface in a new system were created, all the billions of bits of data held in the old systems would have to be reentered in the new system.

DRMS owns many internal systems, which are described in this chapter. However, these systems need to communicate through systems belonging to, or maintained by, others. Telephone lines, satellites and cables that carry data often belong to, or are run by, other agencies and even commercial ventures. Even with all systems up and running, it would not mean a clear connection. Often, the interface of many systems can be best described as “Band-Aid” connections. Some systems have an architecture to ensure communications one way rather than two ways. DRMS can do what it needs to do with its own hardware and software. However, others manage interfacing systems differently, and DRMS cannot force them to change.

DRMS is constantly upgrading its equipment to obtain an improved interface. Writing new software programs for better communications, along with using better and more reliable telecommunication links are among DRMS' goals. If you use the

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DRMS Internet Web Site to find a specific NSN (National Stock Number), you can “surf” DRMS' worldwide inventory. Usually, in less than a minute, you can find specifics on condition, location and perhaps a photograph.

Types of DRMS Information Systems

DRMS Computer Information Systems can also be categorized by type. There are:


- 1) DRMS Production Application Systems
- 2) DRMS Support Application Systems

Many of the systems described below are owned/controlled by DRMS while the others are non-DRMS controlled.

Questions regarding systems can be answered by calling the DRMS Help Line at (DSN) 932-4999 or commercial (616) 961-4999.

Automated Usecode Request Application (AURA)

AURA is a Unix based application designed to help people gain access to any of the DRMS computer systems. AURA reduces paperwork, improves security and makes it easier for the people who administer the computer systems to collect information.




DRMS Production Application Systems


DRMS Owned/Controlled

- Corporate DAISY (DAISY)
 - DEMIL Challenge
- DRMO DAISY (DAISY)
 - (examples of local applications)
 - Conversion of Referral and Local Sales (CORALS)
 - Financial Tracking System (FTS)
 - Safe-Alert/Latent Defect (SALD)
 - DEMIL Challenge Input
- DAISY National Sales Program (DNSP)
- DAISY Decision Support System (DSS)

- DRMS WWW Applications/Pages
- Management Information And Distribution Access System (MIDAS)
- Environmental Reporting System (ERS) (Replaced RAID)
- Recycling Control Point (RCP)
- Single Hazardous Input Program (SHIP)
- DWCF (tracking sales deposits)
- Debt95 (tracking debt collections)




INTERGRAPH
CORPORATE SERVICES GROUP





DRMS Production Application Systems

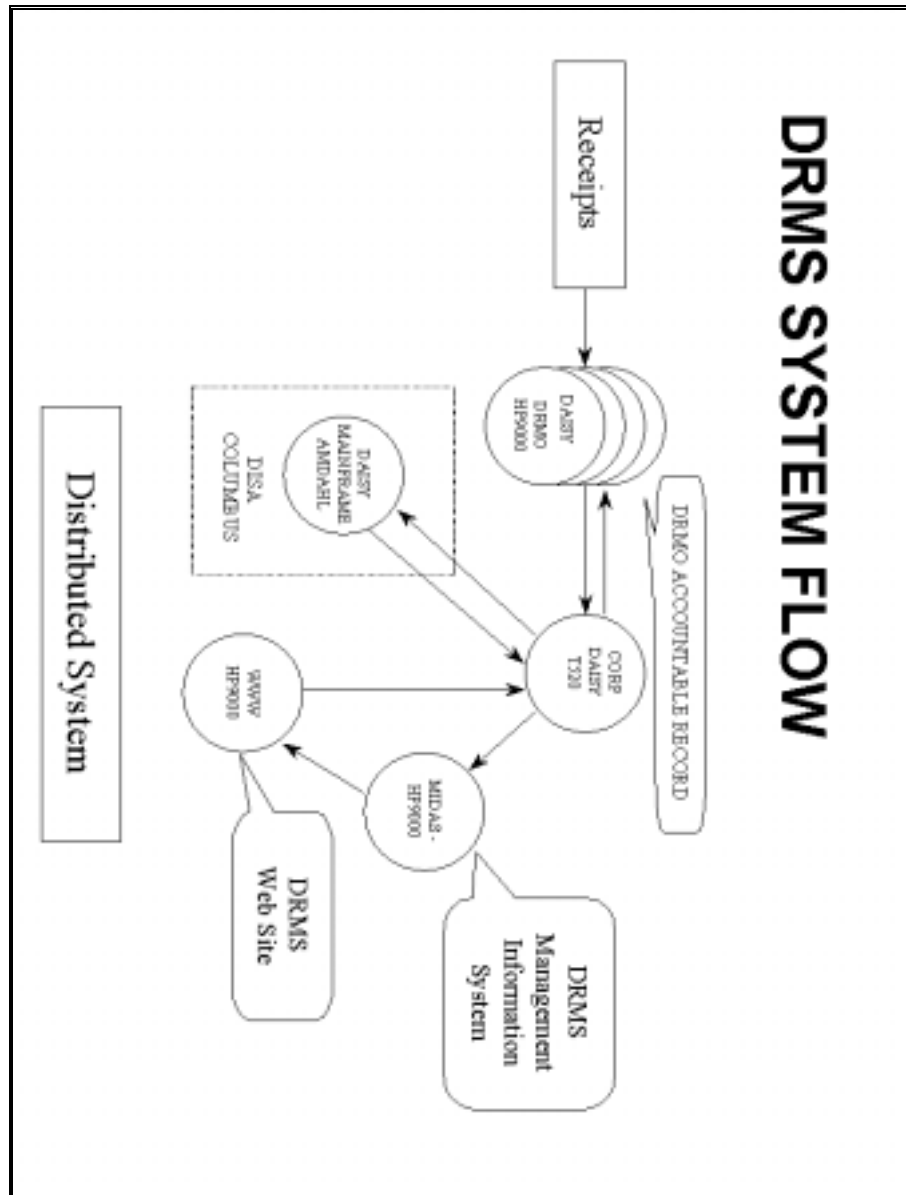
NON DRMS Controlled

- Base Operations Support System (BOSS) (Hazardous)
- Military Standard Requisitioning And Issue Procedures (MILSTRIP)
- Federal Logistics Information System (FLIS)
- Depot Standard System (DSS)
- In-Transit Accountability System (IAS)
- Federal Disposal System (FEDS) (GSA system)



 DRMS Support Application Systems	
DRMS Owned/Controlled	NON DRMS Controlled
<ul style="list-style-type: none">• DRMS WWW Applications/Pages• Problem Tracking Reporting System (PTR) (Being replaced by Support Magic)• Situation Reporting System (SitRep)• Suspense Data Base• Safety Information Management System (SIMS)• Automated Usecode Request Application (AURA)• Environmental Audit Management System (EAMS)• Self Cert• Activity Based Costing (ABC)• Employee Suggestion System (ESP)	<ul style="list-style-type: none">• Personnel Action Request System (PERSACTION)• Equipment Management And Control System (EMACS)• Time and Attendance Reporting• Base Operating Support System (BOSS) (Non-Hazardous)


EXPERIENCE DRIVES INNOVATION



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Base Operations Support System (BOSS)

BOSS is one system that ensures that Hazardous Waste and Material is disposed of in an efficient and regulatory compliant manner. BOSS includes the following pieces:

BOSS Hazardous

BOSS is an on-line system that automates Hazardous Waste contracting, Interfund Billing and Manifest Tracking functions. DRMS processes more than 300,000 delivery order lines and 2 million manifests annually.

BOSS Contracting

This system administers the contracts after DRMOs enter their requirements.

BOSS Finance

This system automatically bills the originating military office and authorizes payment.

Manifest Tracking

This system monitors the contractor's transportation and proper disposal of hazardous materials.

BOSS Supply (referred to as DLSC BOSS)

This system processes all base supply activities, local purchase, service and rental, stock supply, accountable records, receiving, inventory control, local contracting, and funds control. All DLA activities in CONUS (Continental United States) use the system.

Corporate Assessment Management System (CAMS)

The CAMS is a support system containing copies of the assessments conducted at all DRMOs. The CAMS databases

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maintain copies of internal (DRMO and DRMS self assessments) and external (DRMO Corporate Assessment visits). The information gathered during these assessments provides trend information regarding areas that may have compliance problems. DRMS is planning on merging both databases within CAMS to a Windows-based program. The estimated timeframe is late FY99. CAMS uses the gathered information to generate assessment information and documents.

Communications System (Non-office Automation)

This support system, the Defense Information Systems Agency (DISA) Unclassified Internet Protocol Routing Network (NIPRNET), provides unclassified data communications capabilities within DoD, DLA, DRMS and all DRMOs using the Internet. Examples of the use of this system include e-mail, World Wide Web access, and DAISY input. This system is not projected to be replaced in the foreseeable future.

Contractor Inventory Redistribution System (CIRS)

The CIRS is a production system that redistributes excess material that is no longer needed by the DoD. Material is provided to contractors or purchased by contractors using DoD funds. Every year, contractors determine that thousands of these items, valued at millions of dollars, are in excess of what they need. This material is not in excess to the Government. It is returned to the supply system for redistribution. The property is free issue, so the customer is responsible for package and handling. CIRS was scheduled to be replaced in April, 1999 by the Plant Clearance Automated Reutilization Screening System (PCARSS). The same functionality will continue.

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Conversion of Referral and Local Sales (CORALS)

CORALS is a production system consisting of two parts: (1) the Local Sales program operating at the DRMO interfacing with DRMO DAISY, and (2) the National Referral Sales program. The “conversion” refers to converting two prior stand-alone programs to the DRMO HPs. The DAISY interface eliminates double entry and provides a better source for management information. Local Sales give DRMOs the capability to prepare local sales catalogs and required contractual documents on their HP for sales which are conducted at individual DRMOs. The National referral program lets DRMOs prepare sale item descriptions on their HP and send them by batch to DNSP at the National Sales Office. When items are placed on sale, DNSP creates XS6/XS9 transactions, which are forwarded to DRMOs via batches to update the DAISY accountability record.

Corporate Daisy (DAISY)

Corporate DAISY is a system that runs in Battle Creek, Michigan, and is the intermediate step for DRMO personnel that access IRIS. Corporate DAISY deals with MILSTRIP, DoDAAC validation tables and communications with DRMOs, DNSP, the mainframe in Columbus, OH, and more. Corporate DAISY has run on two different machines, the IBM 3081 and the DRMS office Hewlett Packard or HP. Not only corporate DAISY, but also some property accounting functions reside on the corporate HP in DRMS headquarters.

DRMS Automated Information System (DAISY)

The DAISY is a production system that constitutes the DRMS inventory control system. The DAISY is used by DRMOs to

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process property through the necessary disposal steps and account for excess and surplus property from receipt to final disposal. Many DRMOs have their own HP server that runs DAISY, while other DRMOs use DAISY by connecting to a DRMO with an HP server. These HPs in the field are connected to Corporate DAISY. DAISY provides numerous inventory control output reports and has extensive on-line query capability to provide users with immediate answers to “as needed” information requirements.

DLA Contract Action Reporting System (DCARS)

The DCARS is a system that collects DD Form 350 and DD Form 1057 data for all DLA Purchasing Activities, i.e., Hardware Centers, DCMDs, Service Centers and Distribution Regions. Each activity is responsible for reporting this data via DCARS as required by DFARS 204.6. This data then goes to the FPDS (Federal Procurement Data System). The DD Form 350 is used for Large Purchases (over \$25,000), while the DD Form 1057 is used for Small Purchases (\$25,000 or less). M204 is the language used for programming DCARS, and DASC-N supports all programming for DCARS. The mainframe to access DCARS is currently located at the Mega Center in Columbus, OH.

Daisy National Sales Program (DNSP)

The DNSP is used to market and sell DoD supplies property by doing the following:

Merchandising: Property descriptions are received from the DRMO and are organized into groups (usually by commodity). Invitations for Bid/Sales Catalogs are created and forwarded to bidders. The sales catalog is output to offer items to customers.

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Contracting: Bids are recorded, evaluated and ranked. Contracts are awarded and administered. Financial records relating to each contract and sale are maintained. Contractual documents are created to bill customers and process payments. Examples include forms 1131 and 1427.

Bidders: Bidder information and sale participation is recorded for each prospective buyer of surplus property. Prepares labels for catalogs and other mailings to customers.

DNSP output is used to create/mail sales catalogs and prepare the needed contractual documents.

Decision Support System (DSS)

The DSS is a support system containing the DAISY 1143, a summary report of excess/surplus material at a specific disposal activity (DRMO). It provides access for DRMS/DRMO personnel to retrieve, recreate, and download form DD 1143 data. The DSS contains the form DD 1143 data for all DRMOs in the current year, plus the two previous years.

Defense Environmental Network Information Exchange (DENIX)

The DENIX support system belongs to the Office of the Undersecretary of DoD and is a bulletin board system that provides safety and environmental information, among other things. DRMS employees can visit the web site at <http://www.denix.osd.mil/>.

The DENIX system is an avenue to go out to the customer in groups to discuss environmental issues. Customers not satisfied with DRMO service can be identified, and potential customers can be brought back to do business with the DRMOs. DENIX also

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allows access to DoD and Federal Regulatory documents providing DRMO guidance on environmental matters.

Overall, DENIX provides the ability to communicate to the DoD environmental community on the web with timely access to legislative, compliance, restoration, cleanup, and DoD guidance information. It is intended to serve as a central electronic “meeting place” where information can be exchanged among environmental professionals worldwide.

Defense Working Capital Fund (DWCF)

The DWCF production system is a small database used to track non-reimbursable sales proceeds at each level of the agency for corporate goal assessment. This system consists of DRMO DWCF deposits of zone and retail sales and NSO/ISO sales proceeds. DWCF allows DRMO personnel to track what has been produced for the general funds of the Government versus returned to DoD generator. The DRMS Comptroller and Marketing functions see the same information, both for individual DRMOs and rolled up to all of DRMS

Environmental Reporting System (ERS)

The ERS is a web-accessed data storage and report generation production system containing historical contracting, financial, and hazardous property disposal tracking information. The data is available to any generator, regulator, or sales/disposal contractor and allows data to be tailored to the requestor’s specific needs and timeframe. It replaced RAID as of 2/11/1999.

Equipment Management And Control System (EMACS)

The EMACS production system is used by all DRMOs and by DRMS-HQ. The EMACS is designed to provide the primary level

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field activities (PLFAs) and the secondary level field activities (SLFAs) within DLA with the necessary information to properly manage their own fleet of equipment items. The EMACS consists of all types of Material Handling Equipment (MHE), i.e., forklifts, cranes, and GSA vehicles. Each type of equipment that has an hour/meter is reported in EMACS. Reports can be used for maintenance, scheduling, identification, utilization and history.

The EMACS is used by DLA International (Pacific and Europe Zones) as well as DRMS International.

FLIS and FLIS Plus - Federal Logistics Information System

The FLIS production system provides data that is used when DRMOs receive and enter property into DAISY. Some of the data used includes unit price, noun name, demil code, and unit of issue. This data is automatically provided. DLIS (see chapter three) is responsible for the Federal Logistics Information System. The system has both CD-ROM (FEDLOG) and online availability of information. This information includes: Item/Colloquial Name Index, National Stock Numbers (NSNs), Commercial and Government Entity (CAGE) Data, Interchangeability and Substitutability (I&S), Characteristics Information, Reference Number Data, Management Data and Freight Data. During batch processing, DRMS data is updated (daily, weekly, and monthly), and then funneled to the DRMOs through NIIN requests.

FLIS Plus electronically updates and keeps current descriptions of DoD property. Both the DRMS website and GSA use FLIS PLUS. FLIS Plus provides additional descriptive data compared with FLIS. Exact information varies with FSC.

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Interrogation Requirements Information System (IRIS)

IRIS is a National Stock Number (NSN) interrogation system which allows users to determine availability of surplus property bearing specific NSNs at all DRMOs worldwide, at some DRMOs, or at a specific DRMO. The on-line IRIS no longer exists. The DRMS Website provides essentially the same service using more advanced technology. The DRMS website also processes the batch mode of this information.

Intransit Accountability System (IAS)

The IAS is a tracking system used by the Department of Defense to monitor the release of property by the shipping activity until the property is received by the DRMOs. Transactions received in IAS are also used to provide Pre-positioned Material Receipt (PMR) information to DAISY, which assists in receipt processing by the DRMOs. IAS is governed by procedures in DoD 4000.25-1-M, Military Standard Requisitioning and Issue Procedures (MILSTRIP).

Management Information And Distribution Access System (MIDAS)

The MIDAS is a support system providing management information data. MIDAS is the single focal point for management information in DAISY to extract and compile management data. It currently contains a consolidated database of DAISY information for all DRMOs and will eventually include data from other Automated Information Systems, i.e., BOSS, DNSP, FTS, FLIS. These changes are part of the DAISY MOD updates. Through MIDAS, users can obtain DAISY Property Accounting Information. This is accomplished by either creating an ad hoc query or by executing a predefined Public Query. Results may be

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requested as either a summary or detailed report depending on the customer's needs. Data begins with FY95 and is current as of close of business the previous workday. Access is only granted to MIDAS upon completion of the 3 ½ day formal, hands-on training. Additional access capability and information is available via the WWW to the entire DRMS staff.

Message Accountability And Delivery System (MADS)

The MADS is a DLA data messaging system implemented as a temporary AUTODIN replacement. The MADS allowed DLA sites to get rid of antiquated and costly (CDC1700) AUTODIN systems and trunks. We run two MADS copies, one on DRMS IBM3081 and one for DLIS on the 3090. MADS interacts with the Transaction Manager (TM) on the 3090 to accept, process, envelope, and transmit data transaction inquiries/responses. Data transactions from/between DLA PLFAs are entered and returned via MADS using direct-connect (DISN) hi-speed telecommunications links (LU6.2). Data inquiries from/to our global users (outside DLA) enter the MADS through the two DLA (AUTODIN) gateway stations (DAASC Dayton and Tracy) for processing. MADS results in transactions from outside DRMS being received and stored. Corporate DAISY then accesses this file, sorts the transactions, and then sends them to the right application: MILSTRIP, Intransit or Small Arms. Within the application, the transactions are processed, and in some cases, a response/status is generated and returned to the point of origin through another MADS transaction.

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Military Engineering Data Asset Locator System (MEDALS)

The MEDALS is managed by the Defense Logistics Information Service (DLIS) in Battle Creek, MI, not DRMS. MEDALS is an automated information system that serves as a central index of engineering data for DoD. Users are offered an interactive, on-line service that indicates quickly and easily where engineering drawings or documents reside and provides information to retrieve them. Access Control can be obtained by sending email to online@dlis.dla.mil or to medals@dlis.dla.mil.

Military Standard Requisitioning And Issue Procedures (MILSTRIP)

MILSTRIP is the DoD standard method of ordering property in the DoD supply system. DRMS Corporate MILSTRIP runs on a Web-compatible Oracle database on a T520 mid-tier machine. When implementation of the re-engineered MILSTRIP is complete, most of the traditional hard copy MILSTRIP reports will be replaced by on-line inquiry capabilities using Windows. DRMS now provides point of origin for electronic requisitions only at the DRMS Web site.

Office Automation Hewlett Packard (OAHP)

The OAHP system serves as the Office Automation/Mail Hub for Headquarters DRMS. General information available to all users includes Reading Files, Bulletin Boards, Position Descriptions, Policy Letters, etc. Restricted applications include DAISY, SITREP, AURA, CIRS, EAMS, ORS, SIMS, PTR, and SUSPENSE. An application that can be reached, but is not actually located on the HP, is EMACS.

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On-Line Report System (ORS)

The ORS is a support application that processes/generates reports from financial and personnel data. Users with on-line access can view and print reports generated in the areas of cost, accounting, payroll, and personnel. There are various types of on-line reporting systems. DRMS uses the Defense Civilian Pay System (DCPS) for pay, the Automated Time Attendance and Production System (ATAAPS) for timekeeping, the Defense Civilian Personnel Data System (DCPDS) for personnel and the Defense Travel System (DTS) for travel. ABC Powerplay is a new on-line payroll system.

Personnel Action Request System (PERSACTION)

PERSACTION is an automated support system for submitting, approving, processing and tracking of Standard Form 52 - Personnel Action Requests. These forms are submitted to the Human Resource Office anytime a change is made to either a position or a person. The most common actions are recruiting, and reassignments. The PERSACTION is a LIMITED access system, and users have specific roles in PERSACTION: preparers (who submit actions), approvers (who approve the actions), and personnel lists (who process the actions). PERSACTION provides the users with realtime access to status on actions. This eliminates duplicate input, minimizes error via the DCODS interface to employee and organizational data, and provides on-line access to the final output.

Problem Tracking Reporting System (PTR)

The PTR support system is a small database developed by DRMS employees to establish responsibility for and track problems encountered by DAISY or ADPE/T users. The principle goal is to

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respond to all problems as they develop. A further goal is to minimize the possibility of problems being forgotten or overlooked. Each problem encountered by a DRMS user is treated individually and reaction time is reduced to a minimum. Those problems affecting multiple users or multiple sites are given higher priority.

Recycling Control Point (RCP)

The RCP production system facilitates the movement of information, not property. It is designed to eliminate the double handling of property by allowing for automated turn-in and receipt of wholesale property from the depot. RCP is designed to operate at co-located depots/DRMOs, the first of which was Charleston. Once the property is received electronically, it is processed through RTD and S. If it survives these processes, the property is then transferred to the co-located DRMO for disposal.

Safe-AI ert/Latent Defect (SALD)

The SALD database is used to categorize items that DRMOs occasionally receive and are considered defective. The SALD Database Master File contains the identity of, and special handling instructions for disposing of, defective property. Only the SALD Representative can access the file to add, delete, and change the contents. The Representative also directs the transfer of the NSN and SALD Code data to DAISY, as well as the printout of all data in the file. The printout is reproduced and mailed to all DRMOs. Each time a XR1 NSN input matches a SALD NSN, the DAISY displays the SALD code and instructions to the DRMO to refer to the SALD hardcopy listing.

Single Hazardous Input Program (SHIP)

SHIP is a Windows-based program intended to eliminate dual entry of data to the DAISY and BOSS systems. The system can

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generate various reports from the SHIP database and provide the DRMO a hazardous waste log.

Safety Information Management System (SIMS)

SIMS provides an automated system for safety deficiencies found on safety inspections and for employee safety complaints. It enables the DRMOs to print reports for their DRMO and have on-line access to make updates to any deficiencies found at their site.

Situation Reporting System (SitRep)

SITREP is an automated system for reporting an emergency or urgent situation that occurs at a DRMO. Incidents are documented and reported to DRMS. Details can then be forwarded to DLA or other appropriate individuals on a need-to-know basis.

Small Arms Serialization Program (SASP)

SASP is a DLA-wide system for the control of, and accounting for, small arms, by serial number, from initial receipt to final disposition. All small arms under the control of a DLA activity will be registered by serial number in the DoD and DLA Central Registries. The system is used to prepare/process transactions as required to maintain the DLA Component Registry in a current status. All DRMO small arms participants can request access to the small arms system. All small arms transaction reporting within DLA and updating of the DoD Central Registry is unclassified. DRMS-CCI serves as the DLA Program Manager.

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Standard Automated Material Management System (SAMMS)

SAMMS is the automated information system that supports the Defense Logistics Agency's wholesale materiel management mission for hardware, medical, clothing and textile commodities. This wholesale mission consists of worldwide supply support from four DLA Supply Centers, sometimes called Inventory Central Points (ICPs), which are being reduced to three. SAMMS identifies Depot held property that is surplus and, through intermediate systems, refers same to the DRMS RCP system. SAMMS is basically an integrated inventory control system that consists of ten business functions. These functions are:

1. Direct Customer Support - filling customers requisitions;
2. Inventory Management - control of all on-hand and due assets;
3. Determination of management methods and stock requirements, determining provisioning or logistics reassignment support, and forecasting demand requirements;
4. Purchase request management - the processing of acquisition requests to purchase the materiel;
5. Solicitation and Award - obtaining and letting contracts to manufacturers;
6. Funds control - management of the stock budget;
7. Cataloging items - assigning NSN to items of supply;
8. Technical and Standardization - support necessary to acquire the correct item;
9. Post Award functions - administering the contract;
10. Stock level maintenance - satisfying continuous demands.

From a systems perspective, these functions are grouped and accomplished in six major subsystems: entry-exit subsystem,

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distribution subsystem, requirements subsystem, logistics subsystem, contracting subsystem, and financial subsystem.

Suspense Database

The Suspense Database contains all headquarters internal suspenses. It is used for tracking and timeliness of all responses to suspended actions and replies to the commanders and outside inquires.

World Wide Web Server

A World Wide Web home page that provides information on the following: DRMS, Reutilization Transfer and Donations within the government, public sales, customer service, database searches, and zone catalogs. The DRMS Web site resides on the DRMS Web server. The web allows access to DRMS property online 24 hours a day, seven days a week. Customers can search the entire DRMS property database, with restrictions based on whether a customer is military or civilian. Military customers can submit requisitions for property, resulting in cost savings to them and the taxpayer. Sales customers can view and download catalogs, place bids, and purchase items on-line.

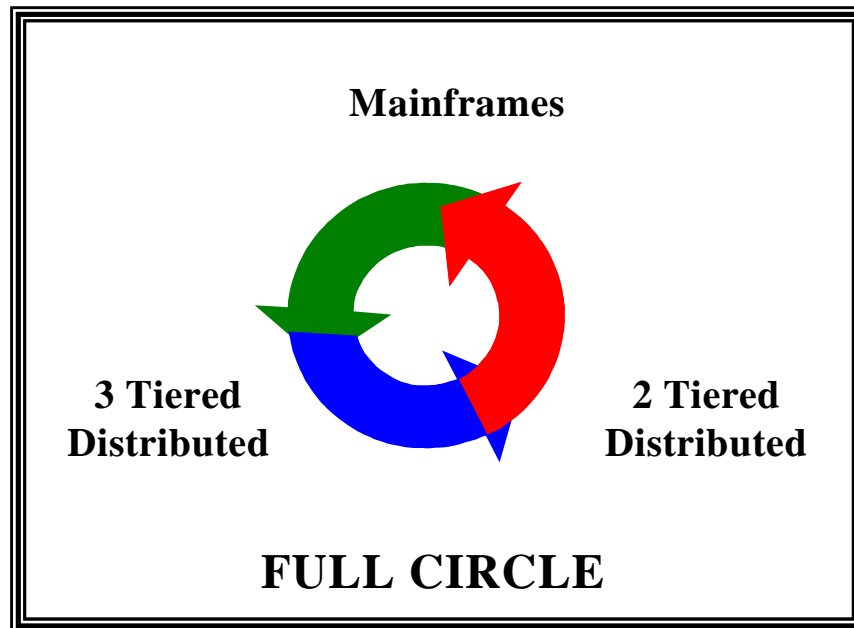
Summary and Conclusions



As one can easily see, there are many complex internal and external systems to facilitate DRMS. The data entry is ongoing, and the ease of interfaces between the systems must be maintained. Many hope that, with the Internet, systems interface will greatly improve. As you have learned, when systems communicate over the Net, they use the same language, making interface considerably easier. Many of these systems are owned or controlled by DRMS and others are non-DRMS controlled. They can be grouped into two main categories: production application systems and support application systems.

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Applying One System

Following the IS/IT strategic plans for DoD, DLA and DRMS, DRMS is seeking to develop one system and try to end all interface problems. The debate continues. Will one all-inclusive information system based on one type of technology be the best?



-  In the past there was one single system used by DRMS. This was called IDMS system. Some of you may remember it. The IDMS system went off line in the early 1990s.
-  Next, DRMS had a three-tiered architecture to distribute data. The three-tiered system allowed three separate systems to operate. This system was thought to be awkward.
 - ☒ DRMOs had data.
 - ☒ A regional database had data.
 - ☒ HQ had a separate database.

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☞ The next generation came with a two-tiered system. This is what DRMS uses currently. The two-tiered system allowed for:

- ☑ One database on each HP out in the field.
- ☑ One database at HQ.

Today, some managers do not want any tiers. Many managers want only one database for all to utilize. They want one integrated computer system again. The main advantage of an integrated system is the ease of maintenance and the reduction in cost. Even if one system is not possible, managers want a seamless interface between all existing systems and DRMS is moving in that direction. Many players are involved in the IS/IT process from inside and outside of DRMS; thus, a seamless interface is a challenging goal. Many changes are happening inside and outside of DRMS to meet or beat the challenge to change. All DRMS application systems, either for production or support, must interface or provide a seamless IS/IT tool for all DRMS operations. The advent of the Internet has and will continue to make DRMS a world class DoD provider of choice for DoD disposal.

Chapter Five Computer Technology and Systems of the Future: DRMS 2010

Chapter Highlights

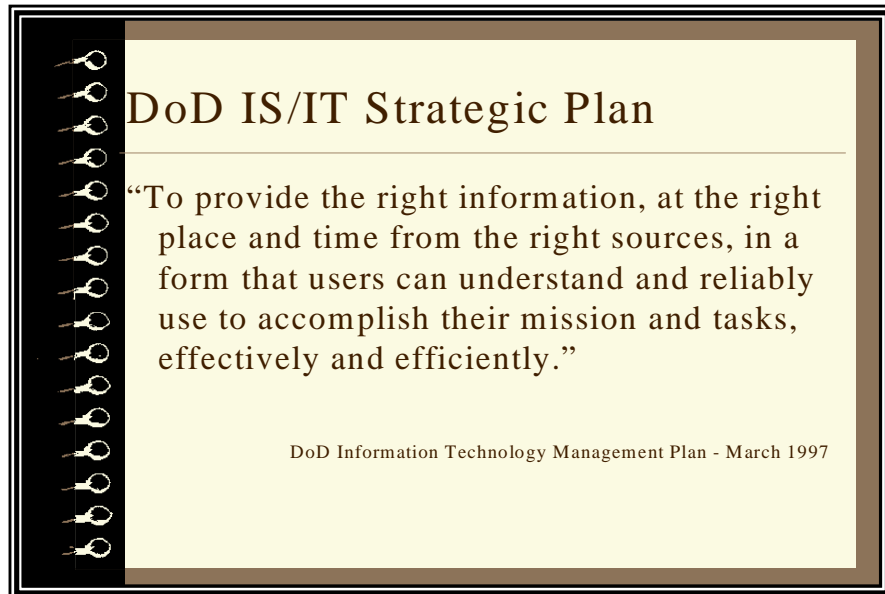
- ✧ DoD IS/IT Strategic Plan
- ✧ Defense Logistic Agency Information Technology Plan
- ✧ DRMS Strategic Business Plan
- ✧ DRMS' Use of the Internet in the Future
- ✧ What others are saying about IS/IT and employees
- ✧ Future IS/IT Innovations
- ✧ IS/IT and you
- ✧ "YOU, Inc."

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Introduction

This chapter looks at how information technology will support the strategy and vision of DRMS, DLSC, DLA and DoD. Strategic Plans look at the future to see where DRMS, and you, will be in that future. IS/IT should facilitate strategic plans. One of the greatest challenges facing government, or commercial business, is trying to fit strategy and business practices with technology. At DRMS, IS/IT works with the DRMS mission and vision to help achieve strategic plans. All of this is based on direction set by DLSC, DLA, DoD and other parts of the Federal Government.

DOD IS/IT Strategic Plan



The Information Technology Management Reform Act of 1996 (better known as the Klinger-Cohen Act) mandates that everyone in DoD improve their day to day mission processes and that they

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properly use information technology to support these improvements. According to Emmett Page, Jr., the Assistant Secretary of Defense (Command, Control and Information Intelligence), “Keeping our workforce, military and civilian, trained in new technologies and improved processes is critical to achieving savings . . . All of us—the OSD staff, the Joint Staff, Military Services and Defense Agencies—need to change the way we do our jobs and improve mission accomplishment, fully exploiting information technology.” DRMS is committed to doing this very thing.

*“More data does not mean superior judgement!”
Admiral J.W. Prueher in Defense News, November 30-
December 6, 1998*

In March of 1997, the DoD Information Technology Management Plan was released. This plan points out that the use of IS/IT is part of the Joint Vision 2010. It states, “Improvements in information and systems integration will . . . impact future operations by providing decision makers with accurate information in a timely manner and . . . gain dominant battlefield awareness. . . We must have information superiority; the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same.” Information technology, within DRMS and other defense service agencies, will increase preparedness and the ability to support the warfighter. IS/IT strategy is crucial in providing the most accurate and immediate access to inventory and financial data.

The mission of ITM (Information Technology Management) is: “To provide the right information, at the right place and time from the right sources, in a form that users can understand and reliably use to accomplish their mission and tasks, effectively and efficiently.” (ITM Strategic Plan, DoD, March 1997, Page 8). This

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mission puts DRMS squarely in the middle. DRMS' responses to this mission are the DRMS web site and training/education programs.

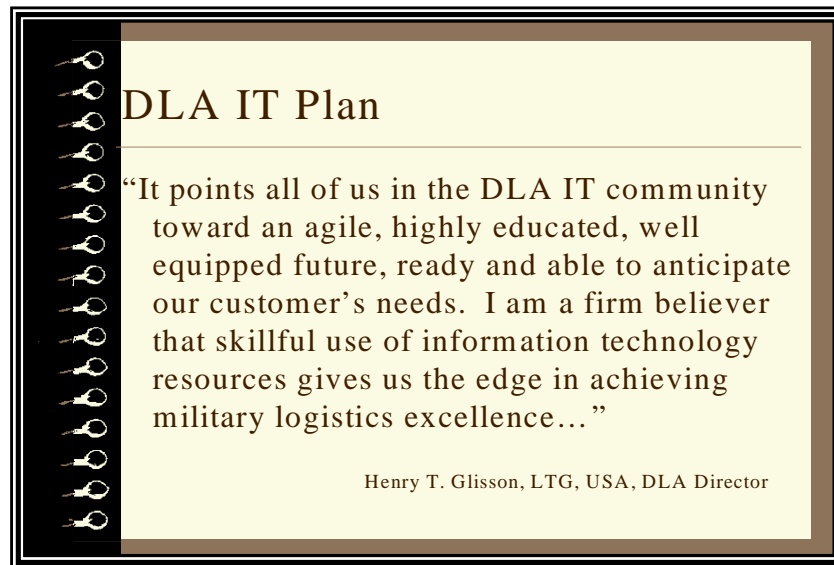
The vision of ITM is: "Information superiority achieved through global, affordable, and timely access to reliable secure information for worldwide decision making and operation." (ITM Strategic Plan, DoD, March 1997, Page 8). DRMS must follow this vision as part of its overall information technology plan. Worker involvement is essential to effective information management plans.

"Strategic actions that made you successful during one period of time will atrophy and, rather than creating advantage, will paradoxically create disadvantage during another period."
Bernard H. Boar in Strategic Thinking for Information Technology, 1997.

The Goals of the DoD IT Strategic Plan include:

1. Become a mission partner (using IT).
2. Provide services that satisfy customer information needs.
3. Reform IT management processes to increase efficiency and mission contribution.
4. Ensure DoD's vital information resources are secure and protected.

Information Systems and Information Technology are the key ingredient to military effectiveness and a strong national defense, and DoD realizes this.



Defense Logistics Agency Information technology Plan

The DLA IT plan was published in March 1998. It is drawn specifically from the DoD ITM Strategic plan explained above.

The DLA IT plan is a "one team, one focus" plan that supports the DLA vision and that of the DoD/Joint Chiefs of Staff. "America's logistics combat support agency. . . the warfighter's choice for integrated life cycle solutions through teamwork and partnerships." The ITP is grounded in the mission and goals of the DLA strategic plan.

The DLA IT mission is: "To provide infrastructure and decision support capability to access and share information 24 hours a day, 7 days a week to achieve world class logistics performance."

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The DLA IT vision is: “Information technology is the key enabler to delivering world class integrated life cycle support solutions to our customers.”

The goals of the DLA IT plan are:

1. To implement a client/server, standards-based IT architecture.
2. Establish an IT capital planning and investment control process.
3. Ensure our workforce has current IT skills through continuous IT education and training.
4. Link IT to business plan requirements and performance measures.

“Yes, information systems are changing our universe, and with it the military our nation will field in the future. The information age already has changed the character and composition of our organizations. It will make military units smaller, lighter and more mobile.”

Admiral J.W. Prueher in Defense News, November 30-December 6, 1998

These goals are being achieved within DLA, specifically within DLSC and DRMS. DRMS has embraced these goals. Each member of the DRMS team must be aware of them. Information technology is key for DLA and DRMS to deliver its core competency: “the unique combination of skills, processes, technologies and knowledge bases in which we excel.” They include:

- 📄 Agile Combat Logistics Support. = Logistics support of combat missions requires fast and accurate information on supply either new or re-utilized.

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- ☐ Rapid Worldwide Crisis Response = Rapid crisis response always has a logistics component, and technology supports and enhances that response.
- ☐ Integrated Combat Logistics Solutions = Integrated combat solutions include the reutilization and disposal of property, and IT makes that solution possible.
- ☐ Single Face with Industry = A single face with industry can be achieved to a much greater extent by DLA and DRMS through electronic commerce and sharing information across the world wide web.
- ☐ Logistics Technology Generation and Application = “Logistics technology generation and application” is the application of IT now and forever. It is easy to see how IT has become so important to the success of the entire support mission of DRMS, DLSC and DLA.

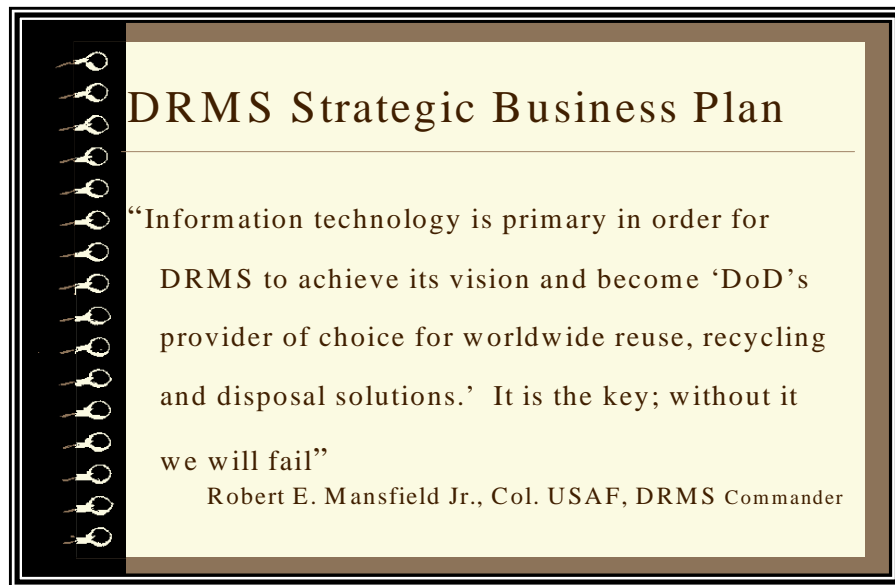
All of these core competencies are enhanced by IS/IT. In many ways they cannot be achieved without IS/IT. The DLA 1998 Criteria for Performance Excellence identifies information management and delivery as a key area for business improvement. DLA stresses that effective IS/IT is one of the hallmarks of agile combat logistics support. DLA has stressed a common operating environment for IS/IT for all parts of DLA. This common architecture will help ensure a seamless interface of all applications software systems.

DRMS Strategic Business Plan

As you all might guess, the DRMS strategic business plan supports and expands the DoD and DLA Strategic Plans and the DLSC Long Range Business Plan as well as Information Technology plans.

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Information technology is primary for DRMS to achieve its vision and become “DoD’s provider of choice for worldwide reuse, recycling and disposal solutions.” DRMS has a mission to provide support to the military services through meeting their disposal requirements to reuse property and to pursue maximum return for our tax dollars.



This mission includes hazardous property disposal; demilitarization, precious metal recovery and recycling support program. These involve massive amounts of information for turning in material for R, T, D or S. The DRMS’ massive amount of inventory, in excess of 20 billion dollars in acquisition value turned in annually, (represents in line items 463,000 wholesale generations and 2.4 million retail generations in FY98, DRMS POM October 20, 1998, pg. 6) must be accounted for accurately. Information is the yardstick that measures DRMS’ success. In 1994, DRMS was designated as a reinvention lab under the National Performance Review (NPR) for the study of privatization

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alternatives. This review led to DRMS' adoption of the Enterprise Management (EM) model in 1996. EM is a model for reaching performance improvement and cost reduction. DRMS has a solid plan to achieve its goals and continues to determine the best savings for its programs and services. DRMS has implemented and will continue to implement applications of information technology. DRMS, according to its 1998 strategic business plan, "will move information not property, to the maximum extent possible." The Recycling Control Point, or RCP, is the true example of this concept. The RCP and its applications are growing using IT. Inventory can be received and processed for proper disposal in place. The EM business model and RCP help DRMS fulfill its mission responsibility, provide optimum value performance, and achieve economic efficiency. Through the use of information technology, DRMS can also add service offerings that can reduce costs to the entire DoD that otherwise could not have been done. In meeting DRMS' strategic business plan for 1998 and beyond, DRMS has a mission and a vision linked to its IS/IT applications.

Mission: Provide best value support for efficient and timely reuse, transfer, donation, sale or disposal of excess DoD property.

DRMS, according to its strategic business plan ". . . will transition the business to a lean, 'virtual' enterprise—becoming managers of information, not property, skilled with the knowledge all DRMS workers need in the future."

Vision: DOD's provider of choice for worldwide reuse, recycling and disposal solutions.

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This vision must be implemented in today's highly technical and information-based world to satisfy all DRMS stakeholders. Stakeholders include DoD, DLA, DLSC, Congress, taxpayers, generators, and employees as well as sales customers. Each has widely varied expectations, and they must be met. Productivity improvements from a decreasing workforce means process improvement comes only with the integration of more sophisticated technological applications.

From a strategic perspective, while descriptions of the property being turned in to DRMS must be precise and contain more detail to be R,T,D, or S-ed in place, the amount of property measured by acquisition value will continue to decline as DOD downsizing continues. According to the 1998 strategic business plan (based in part on the POM, DRMS financial plan), a workload of about \$21 billion dollars of property, as measured by acquisition value annually, will fall to about \$14 billion by FY 05. As budgets fall and the flow of property into the system declines, the value of that property in slim budgetary times will become increasingly important. Many items today are re-utilized over and over again, saving millions in new acquisitions. This means the items turned in are more worn and likely to have less reuse or sales value. DRMS must become better at identifying the value of the property and determining the best disposition. To do so requires sophisticated IS/IT applications.

To meet the strategic thrust of the organizational mission and vision and support the Quadrennial Defense Review (QDR) and Joint Vision 2010, the business philosophy within DRMS must continue to change. Reengineering, streamlining and utilizing every possible technological improvement is necessary to meet the needs of all stakeholders. Doing so also keeps DRMS viable as a true provider of value to DoD and the military services. DRMS will continue to make sourcing decisions using such methods as

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Office of Management and Budget, Circular No. A-76, and activities defined as core will be performed in the manner that is most efficient. That can mean outsourcing many primary functions or if the function is not needed, simply stopping it altogether. A business case analysis must support each decision. The work force will be kept fully informed.



To meet DRMS' Strategic Business Plan for 1998 and beyond, certain goals must be met. Each has an IT component.

Goal #1: Provide disposal services of maximum value.

To cut costs, decrease Service Level Billing, decrease cost per disposition, reduce support costs, and keep the infrastructure of DRMS at a minimum while increasing efficiency, information technology improvements are needed. Upgrades to the DRMS Web site will make searching the inventory quicker, more widespread and more accurate as more descriptive information becomes available. The purpose of DRMS is service, and the

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improvement in service cannot come without better, faster, smarter and cheaper information about all DRMS functions.

Goal #2: Meet or exceed our customer's expectations.

DRMS must retain and increase the number of DoD customers opting to use DRMS services. Customer satisfaction must increase and complaints must be reduced. The reliability rate for services must exceed 95%. DRMS must have faster, more accurate information how and when it is needed. This is exactly what was said in the DoD ITM, "Improvements in information and systems integration will. . . impact future operations by providing decision makers with accurate information in a timely manner."

A part of this goal's success will be FMS (Foreign Military Sales) weapon system search capabilities and BOSS' redesign, as well as re-host of SHIP and a DAISY upgrade and more.

DRMS Strategic Business Plan

3. Streamline processes to create the most efficient disposal supply chain
 - ✓DAISY upgrade is essential
4. Create an environment to encourage innovative thinking and ensure our workforce is enabled to deliver an sustain world class performance.
 - ✓Employees must be multi-skilled and knowledgeable of information technology

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Goal #3: Streamline processes to create the most effective disposal supply chain.

DRMS must improve inventory accuracy and accountability. DRMS must reduce physical property handling. Property must be reutilized more often. More tailored logistics solutions must be provided. Credit card ordering must be pursued. A paperless environment must be implemented. 100% compliance with the Defense Information Infrastructure/Common Operating Environment (DII/COE) policies and standards by FY 01 are essential. These were created to provide a seamless interface between all of DoD. IS/IT becomes greatly improved when everyone is talking the same way. All databases systems must have web technologies and interfaces. Prompt payments standards must be deployed on all commercial accounts.

The DAISY upgrade is an essential part of this. The DAISY is at the heart of the inventory information system. Many internal and external DRMS operating systems depend on data gathered through DAISY. RCP should be fully operational by November of 1999. To better expand the interface of systems, DRMS is moving toward an Oracle database for all DRMS applications to be DII/COE compliant. RTD will continue to be automated and streamlined.

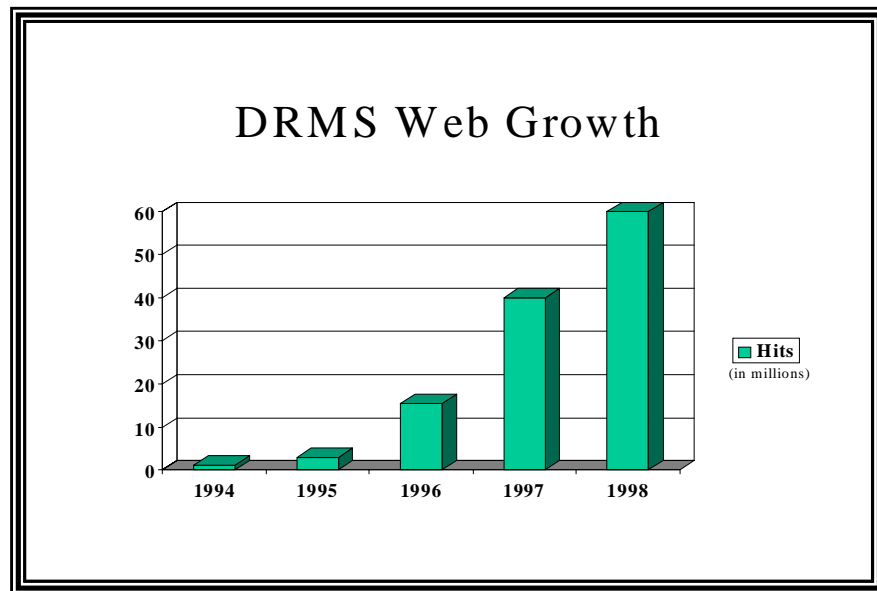
Goal #4: Create an environment to encourage innovative thinking and ensure our workforce is enabled to deliver and sustain world class performance.

All employees must become multi-skilled to some degree and possess the knowledge of practical DRMS business use of information technology. Employees must become more involved in process improvements as employee input is critical to operational success. R, T, D, and S can be greatly increased

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through virtual on-line technological enterprises (a virtual DRMO). Partnerships in and out of government will grow. All employees must have individual development plans. Training must continue to increase and focuses on core competencies so workers can face, and help solve, the many challenges that are facing the DRMS enterprise now and in the future. Continuous upgrades of the workforce knowledge must be ongoing. This is a fundamental responsibility of leadership and each employee.

DRMS' Use of the Internet in the Future



The future of the DRMS Web site and the use of the Internet are hard to predict. The DRMS staff is trying to make what has already been invented work better, cheaper, faster, and meet the needs of a greater customer base. The Web site started in July 1994. Consider this: in 1994-95, the DRMS Web site had 1.2 million hits

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(inquiries) per year. The amount of hits has grown 15% PER MONTH since. Now, the site gets about 5 million hits a month and about 60 million per year. In April of 1998, over 5 million data searches were done in one month, compared to only about 1 million the entire first year.

Obviously, the Web site has expanded. It is now much more than a means of communication; it is a repository of data that can be shared in DRMS only, shared to customers, or shared to everyone. The Web is a place for doing DRMS business. The reason for its popularity is the ease with which it can be used. The future of the Web site is tied to ease of use. The Web can provide an easier client interface with the various DRMS databases. The beauty of the Internet is consistent protocols, making all systems interface smoothly. As DRMS puts more of its application on the Web, more information will be uniform for the personnel and clients of DRMS. The Web site will increase its quality, but that's not all. It will make available more timely, accurate information about the property and related transactions. The Internet has helped DRMS meet its vision and strategic business plans. The Web will have more photos, movies, detailed descriptions, and it will be accessed more and more and more.

"The Internet resembles a living organism that's mutating at an astonishing rate!"

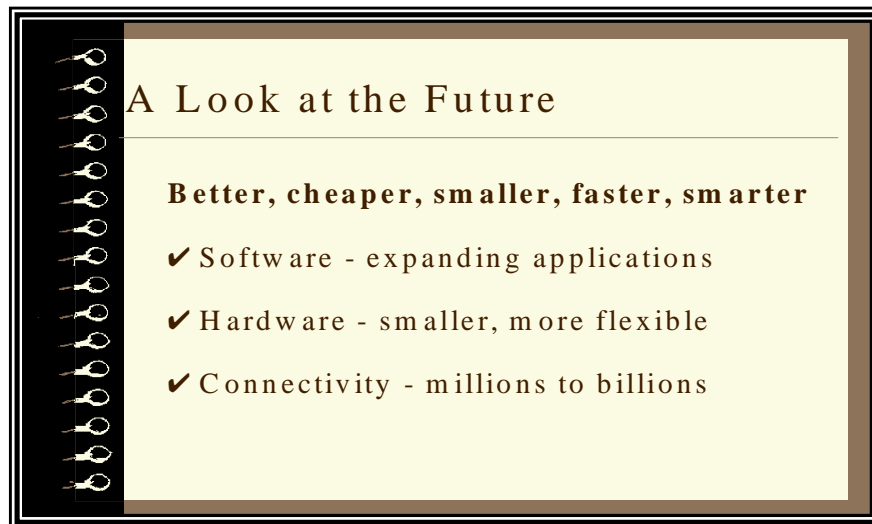
J. R. Levine, C. Baroudi and M.L. Young in The Internet for Dummies 5th Edition, 1998.

The DRMS Web site will become a RTDS one stop-shopping network, with one look and feel. Everyone will get the same answer. The Battle Creek HQ will run the site, and DRMS field activities will use it. This centralization is necessary to create the uniformity and accuracy needed to reach the full potential and

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marketing capabilities of the Web site in the future. Just as commercial business has eliminated numerous internal operating systems. DRMS will go to totally Web-enabled operational systems. Whether it is inventory, marketing, sales, accounting, financial or human resource based, the Web has become the link, and DRMS is moving right along with the most current trends.

Future Trends



Evolution of information technology will continue to follow the current trend: better, cheaper, smaller, faster and, in DRMS' case, smarter.

Better, Cheaper, Smaller , Faster, Smarter

- Better - computers can do things they could never do in the past.
- Smaller - palm top computer.
- Cheaper - a home computer for as little as \$699 (and dropping).

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- Faster - process information faster with the invention of the Pentium II and, now, the Pentium III.
- Smarter - operational processes and practices that exploit IS/IT.

“Computer power is 8,000 times less expensive than it was 30 years ago.”
J. Naisbitt in Global Paradox, 1995.

Software - expanding applications

Software programs are becoming more powerful and user friendly, with wider applications. Today, more employers expect their employees to have hands-on knowledge of popular software programs when they start work. Many companies operate daily with these popular programs, and an understanding of them is a prerequisite for employment. The DLA standard architecture contains many of these popular systems programs.

Hardware - smaller and more flexible.

While software and their applications expand and improve, so will the hardware to support it. Microcomputers of today are more powerful than many mainframes of the past. The central processing unit will become faster, the input/output devices will have greater uses and the size of secondary storage will increase dramatically. Employees will, as a result, have more information and capability at their desktop.

Connectivity - millions to billions

Connectivity of all of our computers will continue. The number of people and businesses connected will go from millions to billions worldwide, and most businesses will be connected. Today there

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are about 4 million computers that are connected to the Internet or that use the Internet at least weekly. (See chapter four.)

Communications will be greatly enhanced. In addition, files and databases can and will be increasingly transferred electronically. The Internet will be the focus of most information processing.

“The Internet isn’t really one network—it’s a network of networks, all freely exchanging information. The Net now has an estimated 80 million users, with a projected 800 million by the millennium . . . All continents of the earth have Internet connections, even Antarctica.”

J. R.. Levine, C. Baroudi and M. L. Young in Internet for Dummies 5th Edition, 1998.

Changing times are already here, but many changes are still being made. The information age followed the jet age. As the jet age changed the world, so did information technology. The application of information technology is only as narrow or as broad as your imagination.

What Others are saying About IS/IT and Employees

Esther Dyson

Esther Dyson, in *Release 2.1: A Design for Living in the Digital Age*, Broadway Books, New York, 1998, according to the *New York Times*, “uses her wide knowledge of the expanding digital environment to create a provocative portrait of the social, economic, and cultural changes being wrought by computers and the Internet.” Her book is widely read, inside and outside DoD, DLA and DRMS. The most interesting points she makes are about work and jobs of the future. Her ideas hit close to home. She

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addresses how skills will be valued in the next five years. Should workers telecommute? What kind of jobs will workers have? She explains how the Internet can be used to post resumes, interview for full and part time jobs, research employers, and better yet, how to use technology to help sell you. She explains that businesses like DRMS are shrinking. This opens opportunities for outsourcing. Outsourcing means fewer permanent employees. Fewer permanent employees keep companies closely knit and small. She does not believe working at home will be the wave of the future, because interaction and teamwork is necessary. In addition, being apart will polarize employees. We will work at home, according to Dyson, electronically, but will continue to go to work daily. She sums up the world of work in 2004 best by saying, "By 2004, you will find that the balance of power between creators and managers, and between employees and business owners, has shifted in favor of individual contributors, even though you and others may personally be playing several roles (With the Internet) employees have more control over their own lives, more options, and more ways to find those options." She sees the world of IS/IT in the future as one that will open more doors for employees, not the other way around. This course will prove that helping you begin to use technology will help you become a more valuable employee for DRMS' other employees and yourself, what we call becoming "YOU, Inc."

Fred Hapgood in Inc. Tech 1998

In a fascinating article in *Inc. Tech 1998*, No. 4, Fred Hapgood talks about a small Chicago Company, Cushing and Co. Rather than being crushed by IS/IT, Cushing used IS/IT to beat the competition. Cushing used technology only where necessary, just like DRMS. Most organizations panic when implementing IS/IT but Cushing used technology to support and streamline business practices and business process to meet business objectives. Like

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all businesses, they needed a vision, a technology plan and architecture to support that vision. These had to be agile. Knowledge of customers and serving customers with IS/IT helped empower not only customers but also employees. Customers helped to build knowledge, and Cushing became a "knowledge based business." They learned customers must be part of the design of the information system and business strategy. Also, customers must give input to improve systems, customer service and service quality. They learned that when they build "service managers," they must have sales, marketing and technological skills. Building employees knowledge not only helped the business, but also built up what DRMS calls, "You, Inc." Before the use of technology to service customers, Cushing had three dozen customers. Today, they serve 1,700. Cushing adjusted their services to meet the marketplace and listened to their customers. IS/IT was key to customer service and business success.

John J. Donovan

John J. Donovan in *The Second Industrial Revolution: Reinventing Your Business on the Web*, Prentice Hall, 1997, discusses how organizations like DRMS can be first. He addresses the forces that are challenging organizations today and in the near future. These forces include globalization, deregulation, privatization, technology, and quality competitiveness. Sound familiar? DRMS is global and is facing deregulation by competition from inside and outside of government. DRMS is facing privatization such as A-76. Technology is constantly upgraded, and new applications come almost daily at DRMS. Quality service is focal to DRMS' success. The book addresses how an organization used the Web and the Internet to reinvent itself. Most importantly, the book offers the explanation that using technology "is no longer optional, it is imperative."

DRMS IS/IT: DRMS Business Education

Melissa A. Cook

Melissa A. Cook in *Building Enterprises Information Architecture: Reengineering Information Systems*, Prentice Hall, 1996, explains that designing complex information systems is just like designing complex buildings. Business managers must provide the “non-technical architectural drawings to guide and control the contractors – in our case - the information systems developers. We can no longer afford to toss technology into the morass of information systems in the enterprise without a business-controlled framework.” She explains why organizations, like DRMS, need a strategic business plan, strategic vision and technology to help meet the operation goals (explained in this chapter). She makes the following recommendations:

- “Communicate, classify and organize your business process and information needs.
- Integrate information across your enterprise to build comparative advantage.
- Reduce information systems complexity.
- Improve data quality.
- Isolate and replace complex legacy systems.”

Obviously, not everyone at DRMS can do all five of the above. Everyone, however, can help to improve data quality. Everyone participates in collecting and storing data. Everyone can help improve communications. Everyone can make a contribution to the overall business process by becoming knowledgeable of the systems and the processes they support. One final point Melissa Cook makes is, “Building Enterprise Information Architectures is, in short, . . . taking control of information technology, and making it serve your bidding—instead of the other way around.” Enterprises like DRMS should build IS/IT to help employees take control - not the other way around.

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Howard Rheingold

In his 1998 book, *Virtual Reality*, Howard Rheingold states, “. . . it wasn’t possible in the 1960s to build a computer cheaply enough to devote the use of a single person—until the miniaturization revolution went into high gear in the aerospace boom.” Before, few working at computer terminals; now, millions. He argues that employees like those at DRMS are not being put out of jobs, but are being given new opportunities in IS/IT type jobs.

He goes on to say, “Automation means using computers to replace human labor. Augmentation means amplifying the power of intellectual labor by removing low-level barriers to high level thinking.” IS/IT makes all individuals in the organization more important. He states, “If necessity is the mother of invention, it must be added that the Department of Defense is the father of technology. . . the U.S. military always has been the prime contractor for the most significant innovation in computer technology.” It is no wonder DRMS web based applications are leading the way for many inside and outside government. Within DoD and elsewhere he says, “Two of the most powerful driving forces behind the accelerated pace of technological change are the phenomena of ‘enabling technologies’ and scientific technology ‘convergence.’” The enabling technologies like application systems at DRMS make the use of the technology possible and the convergence is the technology together with the enabling applications creating whole new fields of endeavor. He means what we have been saying about DRMS all along, moving information and not material with limitless web based applications.

DRMS IS/IT: DRMS Business Education

Kevin Kelly

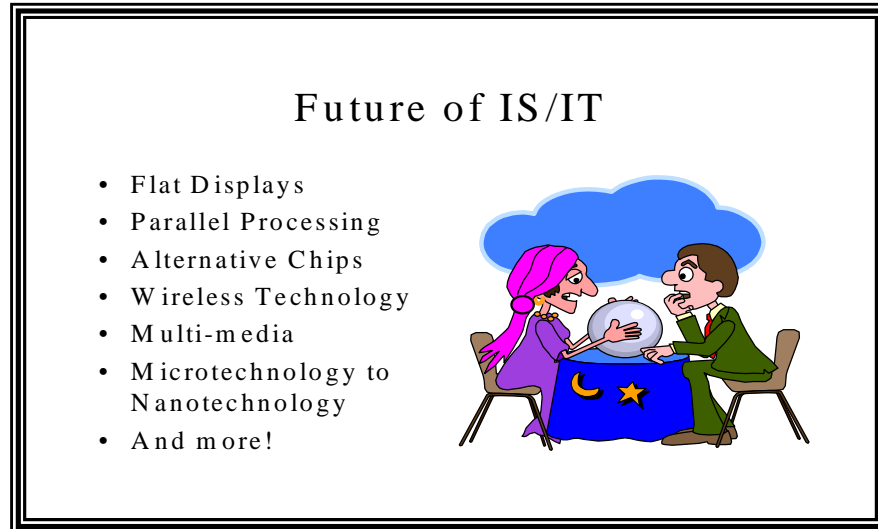
In his 1998 book, *New Rules for the New Economy: 10 Radical Strategies for a Connected World*, Kevin Kelly says, “Whoever has the smartest customers wins.” It is not only a knowledge based business from the inside but also from the outside. Building up yourself as a knowledge base creates new futures for you and DRMS.

He goes on to say, “The imperative of the network economy is to maximize the unique need and talents of individual beings by means of their relationship to many others.” Electronic Data Interface (EDI) and Electronic Commerce at DRMS are examples of what he is talking about.

“Technology has always influenced the size of companies. . . the basic rules of success are externally serve your customers obsessively, escalate quality and out do your competitors, have fun . . . don’t go alone. Established firms are now doing what they should be doing! Weaving dozens, if not hundreds of alliances and partnerships; seeking out as many networks of affiliation and common cause as possible, sharing risk by making a web.”

Kelly sees organizations like DRMS changing size, embracing technology and succeeding by applying IS/IT as a web to its full potential. As we speak the application of IS/IT to DRMS is expanding exponentially. He makes it clear that technology can make quality and service foremost to the organization.

A Look into the Future of information Technology



We will do in the future what we probably never imagined today. One computer engineer said to me yesterday, “. . . do you realize that when you send an e-mail message with some attachments, it travels in pieces in many different directions to be reassembled when it is received by the computer at the other end?” I promptly replied, “NO!” This could give anyone a headache, but it is no different than trying to explain in the early 1700’s that if you sail into the sun, you do not fall off the earth, or that people are actually standing upside down because the world is round. The world of information technology and its application has just begun.

The computer industry’s ability to predict the future has been very poor - much more so than in other industries. This track record started early, with the following quote.

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IBM Chairman Thomas J. Watson's 1943 quote, "I think there is a world market for about five computers."

The inaccuracy stems from the rapid pace of both software and hardware innovation and the breakneck pace of the Web and the innovative uses people found for machines. Some have said, only half-jokingly, that web years are like dog years. Kim Polese, CEO of Internet start-up Marimba, has said the standard five-year business plan is useless for Internet businesses, due to the Internet's constant change. This means that to use the Internet you must be agile and smart in your business practices and organization.

In 1993, there were perhaps 100 web sites on the entire Internet, totaling only a few thousand pages of information. In 1993, few would have predicted millions of web sites and hundreds of millions of web pages available today. Nor would the importance of e-commerce have been likely foreseen. E-commerce is already booming, yet it is perched below the steep part of a hockey stick growth curve.

Interestingly, much of the truly innovative work will occur at home, rather than at work. The U.S. Department of Labor predicts an increasing number of home offices in the future.

*"CASE IH (International Harvester), the second largest in its industry, does over 85% of area asset management worldwide with employees working at home. They manage all the CASE IH worldwide inventory primarily electronically using the Internet/Extranet and Intranet technology."
Helga James, Area Asset Manager, CASE IH Credit 1998*

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Working at home will change in-home computer technology and computer system use. Compared to corporations and government, which have well-built information infrastructures, households have had their computing needs addressed in only a cursory manner. The typical approach is to sell a home-user a business computer with slightly better sound, graphics, and a few games. Given technology's broad applicability to consumers' entertainment interests, and that the typical house is radically different from even the smallest small business, expect this situation to change radically.

Looking at the big picture, we have come full circle since the 1960s. Back then, mainframes were the predominant computing standard. Next came the PC revolution. Now, after more than a decade of PC dominance, there is a trend toward centralizing information. Although this time, mainframes are being supplemented with new approaches. These include the use of relatively small web servers as well as large "storage farms." These approaches will play a role in future management and control of access to organizational information.

Increased Bandwidth

Moore's Law (Charles Moore wrote the fourth generation computer language in 1971) states that CPUs typically double in performance every eighteen months. The hardware got faster as the software became more complex. For years, it was this law which allowed more complex software programs to run. Many analysts now agree that most people have enough computing power for their everyday word processing, spreadsheet calculating, and web browsing needs. Given the increased emphasis on the Internet, a new bottleneck has come forth: the rate at which information on the Internet can be accessed.

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Anyone who has browsed the Web using a 28.8K, or even a 56K, modem has experienced the frustration of slow-loading web pages. Technically, the problem is one of limited bandwidth. There is too much information to flow and not enough “pipe” through which it can flow. The bandwidth-induced delays can occur at any or all of following locations: the web server, the Internet itself, and the user’s connection to the Internet. Improvements made in this area of technology can effect DRMS.

Delays at the Web Server

The marketplace will address delays at the web server. If a web site can’t deliver pages quickly enough to satisfy the visitors, the site will eventually become less popular. The web site creator needs to make sure the site has fast enough web servers to handle the expected demand and balance that demand with cost.

Delays Caused by the Internet Infrastructure

Delays caused by inefficiencies in the Internet infrastructure are being addressed on several fronts. These inefficiencies are already influencing bandwidth deployment for the Internet, and are expected to result in greatly increased bandwidth over the next decade:

Name	Sponsor	Web Site
Internet2	Universities and high-tech companies	http://www.internet2.edu
NGI Next Generation Internet Initiative	U.S Government	http://www.ngi.gov
VBNS Very High Performance Backbone Network Service	MCI and the National Science Foundation	http://www.vbns.net

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Two major focuses of this work are: increasing the number of addresses available on the Internet and providing for enhanced “quality of service” for those who wish to pay for it.

INTERNET ADDRESSES

Every computer hooked to the Internet is assigned its own 32-bit address, using the IPv4 (Internet Protocol Version #4) addressing scheme. Mathematically speaking, there are 2^{32} possible addresses that can be assigned:

$$2^{32} = 4,294,967,296$$

Thus, at most, 4.3 billion different computers can be connected to the Internet. In practice, the number is somewhat smaller, as the addresses are assigned in large clumps and not every address in a clump is actually used.

It has become clear that all available Internet addresses will be used up sooner, rather than later. Part of the concern comes from an expected explosion in the number of small, Internet-connected products (discussed later), each needing its own address. To accommodate this expected surge, the length of an Internet address will be increased to 128 bits in the IPv6 addressing scheme. Again, in mathematical terms:

$$2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456$$

That’s a lot of addresses! Even in the worst-case scenario of address allocation, this scheme assures that every square inch of our planet could have an Internet device on it. Given reasonable allocation schemes, millions of Internet devices per square mile could be addressed. However, once IPv6 becomes the standard there will be plenty of Internet addresses available for a long, long time.

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QUALITY OF SERVICE

Quality of service refers to the quality of the Internet connection and is defined in terms of priority. For example, someone may be willing to pay a high per-minute rate to obtain an excellent video connection. Someone else may not be willing to pay more, and will have to deal with distorted images and bad sound for the same type of video connection. For the person paying for a high quality of service, the information packets, which represent the video conversation, are given a higher priority than those for the regular user. Those packets get to move to the front of the line when an information traffic jam occurs. Expect Internet subscriptions offering various quality of service options to be deployed starting early in the next decade.

Delays at the User End

Delays at the user's connection to the Internet typically have the most potential for speed improvement, at least for a home user with a dial-up modem connection. Two major technology initiatives, cable modems and Digital Subscriber Line (DSL), promise to help alleviate that bandwidth bottleneck, but others will also be discussed in this section.

CABLE MODEMS

Cable modems allow cable customers high-speed access to the Internet, often with only minimum changes to the existing cable infrastructure. The term "modem", which stands for Modulator/DEModulator, is misleading. In conventional dial-up modems, the signal is converted (modulated) from digital (which the computer likes) to analog (which the phone line likes). In a cable "modem," the signal stays digital the entire time. In fact, a cable modem allows a cable company customer to hook his or her

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computer to the Internet using a connection very similar to the network connections found in corporation or government offices. Connection speeds are somewhat slower, ranging from 256K bits per second to as high as 10,000K bits (10 megabits) per second. The typical corporate or government local area network (LAN) operates at 10 megabits per second, but some are switching to 100 megabits per second. Some high-speed LANs even operate at 1,000 megabits per second, but this is relatively rare. High-speed networking equipment is very expensive. Expected fees for home cable modem access are in the \$40 to \$50 per month range.

DIGITAL SUBSCRIBER LINE (DSL)

DSL (Digital Subscriber Line) is the name for a family of technologies, with the most well known being Asymmetric DSL, or ADSL. These technologies are sometimes referred to as xDSL, with the “x” standing in for several possible first letters. DSL is the phone companies’ answer to cable modems. It allows telephone customers high-speed access to the Internet using conventional phone lines. In addition, it allows this access without tying up the existing telephone line. It allows users to talk on the phone while browsing the Internet. Like cable modems, DSL uses digital technology to achieve its high levels of performance. Many different levels of DSL exist. Performance is somewhat dependent on the customer’s distance from the Phone Company’s central switching office. In most implementations, DSL speed is slower than cable modems, but is still many times faster than top speed (56K) modems. Pricing should eventually be competitive with cable modems, though for now, DSL connections are slightly pricier.

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Other Technologies

Several other technologies offer some promise for high speed Internet accesses. However, most observers expect the major battle to be fought between cable modems and DSL.

Direct Broadcast Satellite (DBS) offers speeds comparable to DSL. With this technology, a customer requests a web page using a conventional dial-up modem. A satellite then beams the requested page down to a small satellite dish at the customer's location. The chief problems with this approach include tying up a phone line and poor response time (latency), as the request makes the roundtrip from customer to the web site to the ground station to the satellite and back to the customer.

Wireless Internet connectivity also has some adherents. This model is similar to the cell phone model: the customer's computer communicates directly with a broadcast tower, which is hooked into the network. The biggest problems are high equipment costs and relatively slow connection speed. A big advantage is support for mobile Internet access.

The Iridium system will combine a worldwide network of low altitude stationary satellites (they rotate at the same speed as the earth so they appear stationary) that will make every spot on the planet accessible to wireless communication. The first stages of Iridium are already operational.

Pervasive Internet

Parallel to the bandwidth expansion efforts is an effort to make the Internet universal. Though no company has made it an explicit goal, the combined result of numerous disparate efforts will be exactly that: access to the Internet from anywhere and at any time.

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Internet Kiosks

An early example of this trend can already be seen in many airports. Internet kiosks allow quick, easy access to the Internet with a swipe of the credit card. Expect more of these devices to appear, especially in high traffic areas such as airports, train stations, shopping malls, and national parks – any place where multiple telephones are now available.

Inexpensive Wireless Technology

Within five years, however, Internet kiosks will start to lose favor. Inexpensive, easy-to-use, wireless, handheld Internet devices will proliferate, much as cell phones have. It's fairly easy to find an open telephone at the airport now, since all those cell phone users would rather sit down and call using their own phones! Expect the same thing to happen with wireless Internet devices. Prices will drop, both for the devices and the service. People will pull out their pocket Internet access device to quickly check a stock price, restaurant review, movie schedule, or surf the DRMS web site.

Expect an early leader to be Palm Computing, makers of the very popular Palm Pilot line of personal digital assistants (PDAs). Their next major product will be a Palm Pilot-sized device with rudimentary wireless Internet access capabilities.

Information Appliances

The “information appliance” is a concept that has gathered tremendous momentum recently. If one looks in a typical kitchen, there are various specialized devices for cooking, chopping, and blending – not one device which tries to do it all. Applying this view to computing, it becomes clear that a general-purpose computing device may not be the best solution for many computing tasks. For a long time, however, computer hardware costs alone have prevented specialized computing devices from becoming a reasonable option. But continually decreasing

DRMS IS/IT: DRMS Business Education

computer hardware prices, combined with well-defined communication protocols, easy and affordable Internet access, and people's seemingly insatiable desire for information have finally made the information appliance practical.

What would a typical information appliance consist of? For starters, it would have a small, reliable operating system, not a huge one like Windows 98 or Windows NT. Candidates include Windows CE, Java OS, and several Unix-based systems.

Second, it would do only a few things, but it would do them efficiently. For example, Cyrix has a prototype device it calls a WebPad. The device will browse the Web and handle email, and that's about all. It will use a wireless network connection to send/receive information. Advantages: it's small, light, and lets you browse the Web from within 500 feet of the base station.

Another example of an information appliance is ReplayTV, scheduled for a 1999 debut. It is essentially a VCR where the tape has been replaced by a permanent hard disk. ReplayTV allows for completely new functionality, such as "pausing" a live football game. It also has high-speed digital output, allowing for transfer and archiving of recorded material.

Always-On Home Internet Access

One subtle but significant change will occur with the advent of cable modem and DSL Internet access. Someone subscribing to either of these Internet access services will have a "live" Internet connection, 24 hours a day. Folks who don't want to bother with today's multi-minute dial-up connection routine will be able to stroll over to a PC and access information in just a couple of seconds, be it TV listings, sports news, or shopping sites. For those who want it to, incoming home email can have the immediacy of email at work.

DRMS IS/IT: DRMS Business Education

Home Networks

Once a household acquires a second PC, networking begins to look attractive, if for no other reason than to allow printer sharing. While Microsoft has made simple networking relatively straightforward, it is still too complex for the majority of home users. New technologies, such as Sun's Jini, and a new Microsoft web device initiative, promise to make "plug and play" networking straightforward. Improvements are certainly needed, because large numbers of network-aware devices will debut in the near future.

Home Servers

Once a house has a computer network, it becomes possible to deliver information over that network – information such as music or video. For example, a digitally taped program could be played anywhere the home network has a suitable display device.

Music has even more potential in this regard. MP3 is a digital music format, which has become very popular. It is significantly more efficient than the format used to encode the music CDs we listen to now. For example, while a music CD can hold about an hour's worth of music, the same disc formatted for MP3 can hold ten hours or more of music. Given a home network, music could efficiently be delivered to any place in the house with suitable playback equipment.

All this will require large amounts of storage, though: 60 megabytes per hour for music, 1,000 megabytes per hour for video. As hard disk prices continue to drop, having a "home server" will become a realistic option. It will be a place to store favorite movies and programs, and perhaps one's entire music collection - always available any place the home network reaches.

DRMS IS/IT: DRMS Business Education

Kitchen Central

The kitchen has always been the center of the home, and this emphasis continues in today's most popular architectural plans. Similarly, expect the home network to centralize in the kitchen.

For example, the typical home refrigerator is festooned with magnets and notepads. If computer companies have their way, the "fridge" front will eventually sport a LCD, with notes scrawled on the screen or spoken into a microphone. Martha Stewart will just be a tap of the finger away.

As groceries are used up, some envision wandering them with a bar code reader, which transmits an "out of milk" message to the home server. On the way to the store, one just grabs a small networked PDA, which is constantly updated with the latest grocery list from the server. Alternatively, if savvy grocery stores want part of the action, they may offer a service to deliver the items you electronically request.

Digital Memories

Digital photography is poised for widespread adoption. The pictures on the DRMS web site can be taken with digital cameras. It is already an essential tool for professionals in the insurance, real estate, and news photography businesses. With the advent of sub-\$500, snapshot-quality, megapixel cameras and high-speed Internet access, more and more families will share family photographs over the Internet. Storage of digital photos will require significant hard disk space, however.

As a home server with a large hard disk becomes a reasonable possibility, digital video editing technology will also work its way into the home. Digital video cameras have declined significantly in price, and the IEEE-1394 (FireWire) standard has emerged as the way cameras can upload video to PCs.

DRMS IS/IT: DRMS Business Education

DRMS currently uses digital pictures on the DRMS Web site to show merchandise with greater clarity. As the old saying goes..."a picture is worth a thousand words."

Voice Over IP

The Internet Protocol (IP) is the way different machines on the Internet communicate. Telephone calls use a different, analog-based system to connect two people. Many industry observers believe that long-term, telephone calls will be treated just like machine communications, using the digital IP standard. In fact, some expect high-speed Internet connections to become so prevalent, and voice conversations to occupy so little of the bandwidth, that phone calls may become essentially free.

Making phone traffic all digital also opens up new possibilities. For example, a computer seamlessly becomes an answering machine - one which can filter, sort, and store voicemail, fax, and email messages.

Home Monitoring

Assuming the existence of a pervasive home network, a logical extension is to use that network to provide home security. By plugging network-aware cameras into the network, it would be possible to keep an eye on a baby in another room. It would also be possible to check in on the house while on vacation – and actually *see* if everything is okay.

In addition, rather than pay an alarm monitoring company a monthly fee to keep watch over the house, the home network could again make itself useful. If a break-in is detected, the home server could send a page over the Internet. The recipient of the page could either call the police, or choose to hop on the Internet, log in at home, and take a look to see if it's a false alarm.

DRMS IS/IT: DRMS Business Education

Electronic Books

Many have expected the book to go electronic for a long time now. But people still prefer the paper “experience” for many reasons, especially the greater readability and portability that the printed word offers. For the electronic book to predominate, it must get the form factor right.

Recent innovations have driven progress in the readability area: some screens can now display 200 dots per inch, which is approaching laser printer quality. Several companies are patenting technology in the “electronic paper” area, which will allow for flexible (as in *bendable*), high resolutions screens. Something which looks, reads, and feels like a book, yet can have its content updated, would certainly prove popular. Expect something in this vein to appear over the next five years.

DRMS' web site has many articles available. The advent of such technology could greatly impact how DRMS puts out newsletters, memos, updates, etc.

New Internet-Based Services

The Internet will make possible many new services. Some are waiting for sufficient bandwidth to be deployed, others simply for the possibilities to capture the imagination of the masses.

Automatic Translation

Automatic translation already exists on the Internet, at least from English to French, German, Italian, Portuguese, and Spanish. Translation in the opposite direction is also possible. The service is provided by AltaVista, the search engine company:

<http://babelfish.altavista.com>

DRMS IS/IT: DRMS Business Education

Results can vary from terrible to excellent, depending on the text. Here's an example of the software doing a pretty decent job:

Translation	Text
Original	Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.
To Spanish	Cuatro cuentas y hace siete años nuestros padres traídos adelante en este continente, una nueva nación, concebidos en libertad, y dedicados al asunto que todos los hombres son igual creado.
Back to English	Four accounts and for seven years our parents brought ahead in this continent, a new nation, conceived in freedom, and dedicated to the subject that all the men equal are created.

Another approach, the Universal Networking Language initiative, is also being considered. This group intends to create a central “hub” language to which all languages can be translated. Once the meaning is encoded in the hub language, it can automatically be translated back out to any language for which a hub/language converter has been created.

An English language writer would ask for a translation of the text to the hub language and then back to English. If it still made sense, the writer would know it would theoretically make sense in any of the supported languages. While intended mostly for technical documentation, the initiative does have potential to greatly enhance cross-cultural communication.

This technology could be very useful to DRMS. With automatic translation it would be easier to communicate with overseas customers.

DRMS IS/IT: DRMS Business Education

Electronic Stock Exchanges

Stock exchanges are evolving from the physical (such as the New York Stock Exchange), to the virtually intermediated (such as NASDAQ), to the virtually direct (such as Instinet). In this latter type of exchange, buyers and sellers deal directly with each other, absent any intermediaries. In addition, trading is not limited to arbitrary hours of operation; rather, Instinet is open 24 hours a day. The SEC expects this type of trading to become more and more prevalent and has passed rules that encourage it. While Instinet is still only for institutions, its methodology will eventually be available to small investors.

For the average person looking to trade stock, this is good news. Disintermediating stock brokers by moving toward electronic, web-based trading levels the playing field and increases the likelihood transactions are carried out fairly.

Distance Learning

One of the areas sure to be deeply affected by blossoming bandwidth availability is education. Given a cable modem or DSL connection, schools will be able to transmit full-motion video to distance learning students. This video will be two-way, allowing full interaction from the comfort of home.

Schools with a rich academic tradition, such as Harvard, will be able to offer pricier branded educational products; much like Gucci can charge more for a handbag. Eventually, classes taught by the best professors will demand the highest premiums, possibly allowing those individuals to become “free agents” and negotiate better teaching deals.

DRMS is expanding its distance learning. Already, two courses offered by Army Logistics Management College (ALMC) are available on the web.

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Remote Consultation and Diagnosis

The Internet will also enable innovative health care approaches. For example, with sufficient bandwidth, physicians will be able to conduct remote diagnosis of patients. Specialists can be “brought in” to a small town, for example, to consult on an unusual medical condition. Medical images can be sent to an expert film reader in another state, or on the other side of the globe, for immediate analysis.

Networked Games

An area sure to be wildly popular is Internet game playing. In many studies, people have overwhelmingly preferred playing against a human opponent rather than against the computer. Given a fast connection to the Internet, very sophisticated multiplayer games will be possible. The popularity of interactive online gameplay can be seen in plans for the next generation of Quake, perhaps the best-known “first-person shooter” game. Its main mode of operation will be for online play, with a solo mode added almost as an afterthought.

Home Media Delivery

Broadband Internet access will also open the gates to home media delivery. For example, it will be possible to download a CD’s worth of music in just a couple of minutes. It’s already possible to “burn” CDs at home, at reasonable prices. Putting these items together, it’s clearly a new distribution model for music is likely. Alternatively, music could be downloaded directly to a home server and simply played from there. Likewise, video could be downloaded, though even at cable modem speeds, downloading a feature film would take a significant amount of time. Delivering high-quality streaming video would not be a problem, though. This would allow for true video-on-demand, and would likely

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result in most anything currently seen on TV being made available whenever a viewer would like to see it.

Software, both business and entertainment will also be downloaded. Smaller programs already use the Internet effectively as a distribution medium; larger packages will follow. Online rental of software may even become a realistic alternative, given sufficient copy protection assurances for software development firms.

Upcoming Technologies – Products of the Future

Several emerging technologies are likely to impact anyone who works with computers.

Flat Panel Displays

All monitors will be flat like a sheet of paper. We have the technology now, but it is expensive. For example, the flat TV sold by Phillips Magnavox costs \$15,000. These displays are not light sensitive. With this technology, you could have billboards, movie screens and even store signs displayed by programs in satellites from remote distances. You could see a movie outside in bright sunlight. This could be valuable to DRMS, because computers could be used to take inventory outdoors without a glare.

Solid State Storage Devices

Solid state storage devices may one day replace disk drives. Solid state storage is lighter, uses less energy, and can hold more information for a longer period with less power than disk drives. This could be valuable to DRMS, because more information can be stored easier.

DRMS IS/IT: DRMS Business Education

Parallel Processing

Parallel processing may take the place of one processor. Parallel processing could make speech, vision and other recognition programs run better and faster. This could be valuable to DRMS. Imagine not using a keyboard to enter information. You could walk through a warehouse and by talking, tell your hand held computer what is there.

Radio Transmission and Bar Codes

Some day, DRMO inventory may have radio transmitters attached to all property bar codes. Inventory could be located instantly.

Alternative Chip Technology

Alternative chip technology is another chip besides Pentium II silicon chips now used in many machines. Ideas for Gallium Arsenite chips are being developed that are ten times faster and run much cooler than their silicon counterparts. This could be valuable to DRMS. Faster is always better.

Transparent Communications

Transparent communications between platforms are a thing of the near future. We could more easily transfer data and documents between members of a group. Call it GroupWare, because it will seamlessly unite the group. DRMS is working toward that very thing now.

Nanotechnology

Microtechnology of the future will become nanotechnology. In other words, technology which is incredibly miniature. It will create tomorrow's micromachines that will be scaled down to one billionth of a meter. We will be building by individual atoms. These types of nanotechnological developments let us see right into our life cell - DNA. With nanotechnology it would be easier and cheaper to transport computer equipment to all DRMOs.

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“The information supply available to us doubles every 5 years.”

Richard Saul Wurman in Information Anxiety, 1996

Virtual Enterprises

Virtual enterprises, such as Ebay.com, can replace an entire organization which electronically replaces the classified section of thousands of newspapers. A virtual enterprise, such as Ebay.com, has no physical store or location. Everything exists primarily online. The DRMS is moving in this direction, as the web site lets customers search the DRMS property on line. DRMOs will change their business practices and become movers of information not material.

According to the winter 1999 edition of the Business Register, STOCKS in:

Internet	up 371.1 % for 1999
Specialty retail	down .7%% for 1999.
Financial services.....	up 6.7% for 1999
Banking.....	up 1.9% for 1999.
Computer hardware.....	up 76.5% for 1999
Transportation down	down 19.4% for 1999

“Technology took all the starring roles. . . Internet stocks were by far the strongest.”

Extensible Markup Language (XML)

XML is probably the single largest change sweeping across the Internet today. Since it's occurring behind the scenes, casual observers will not be aware of it. But most of the biggest industry

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players, including Microsoft, are behind the initiative, and it already has tremendous momentum.

Basically, XML changes the way web pages are written in a way which allows them to contain more meaningful information than they currently contain. XML is a simplified version of Standard Generalized Markup Language (SGML) used mostly in writing complex technical manuals, but the principal is the same.

If you look at a web page from an online store, you might see a line like this:

Titanic (video) ... \$12.95

Today, that line could just as well contain the weather forecast for Peoria, or news about an earthquake – the only difference is the characters that display. There is no inherent *meaning* about Titanic, videos, or the cost involved.

With XML, it is possible to display the exact same information - have it look exactly the same - but to *mark* the text in a way that states, “This is a video, its title is Titanic, and its price is \$12.95.”

Why is this important? Because, if the Web had all its pages marked up using XML, you could go to a search engine and say, “Who has the best price on a Titanic video?” And you could expect to find a reasonable answer, and perhaps even the best price on the product you want.

Applications of XML are not limited to searching for prices. Any type of information can be tagged meaningfully: phone lists, novels, or types of birdseed. Once tagged, the information can be found very efficiently – no more searches that turn up hundreds of useless links.

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XML also enables transactions between businesses to be more efficient. The companies, such as DRMS, agree on a set of standard tags for the type of business they do, then conduct business by transmitting XML data marked with those tags.

Agents

After much hype in the 1980s, artificial intelligence (AI) has finally settled into a realistic, helping role. The hyperkinetic Office Assistant, which accompanies Microsoft Office products, is an outgrowth of AI technology. Future Microsoft products will try even harder to be helpful, watching usage patterns and offering suggestions based on them. In addition, part of the assistance will be in reducing clutter for you: if you don't use a feature much, it will eventually be moved from prominence to an area less in the way.

Likewise, agent technology will play an increasing role on the Web. In a few years, you should be able to say, "Please research the number of demil tanks by DRMS in 1998 for me," and get a report back in an hour or two. Of course, you'll also be able to ask, "What's the best price on a Titanic video?"

Voice Recognition

Voice recognition is alive and well, and almost fully usable right now. Tests indicate a maximum error-corrected entry speed of between 30 and 45 words per minute. However, if you type much faster than that, the technology isn't for you yet. But it keeps improving, and rapidly. It was only fairly recently that voice entry still required discrete word pronunciation: You. Had. To. Stop. After. Every. Single. Word. Now, all major speech recognition products handle continuous speech fairly well.

The continual march of Moore's Law certainly benefits this area. Processor speed improvements will likely continue apace for the

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next decade, so within a few years speech recognition software's speed will rival that of the fastest typists.

Given the already respectable voice synthesis capabilities computers have, chatting with your computer will soon become a reasonable proposition. More to the point, this technology will allow small, keyboardless digital assistants to become much more useful than they are today. Voice input will eliminate the need to peck at a tiny keyboard or to learn an obscure shorthand system.

Gestural Input

Voice input isn't the only new input model being investigated. A number of researchers are looking at ways to recognize users' gestures to control program execution. This will probably take a while to develop, though.

Once video cameras become standard issue with most PCs, however, it will make sense to make use of the camera when not videoconferencing. Gesture recognition would be a perfect application, and would perhaps give the user a chance to get a little upper body exercise at the same time!

Virtual Reality (VR)

Currently there is little real need for virtual reality software, outside of military simulations and high-end arcade games. Virtual Reality is an electronic simulation of real life. This will eventually change, given compelling enough applications. Several new data visualization programs are making use of affordable high-end three-dimensional graphics cards to provide "fly-throughs" of complex data models. Expect adoption of these programs to lead to more mainstream acceptance of virtual reality visualization tools, since a two-dimensional monitor provides only a pale imitation of a true, VR experience.

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Artificial Intelligence and Expert Systems

Artificial intelligence is simply an attempt to model aspects of human thought on computers. An expert system uses artificial intelligence and a knowledge base of human expertise, such as software support, to help solve problems.

DARPA Innovations

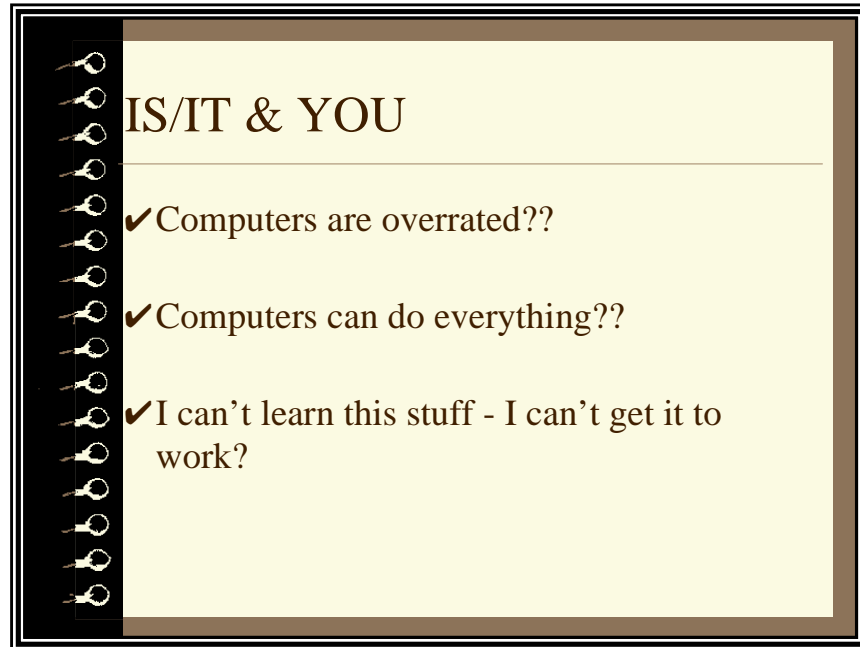
DARPA, (Defense Advanced Research Projects Agency) as well as many other public and private agencies, works daily on increasing the performance and usability of the Internet.

One future idea is a solution to limit Internet traffic. It is called Internet2 and is planned to be ongoing in the year 2002. It will have limited access but greatly increased speed for advanced interfaces by corporations, government, and large organizations. Researchers over the globe can interface more quickly, but there will be a cost, not yet determined, to connect to the new service.

DARPA is developing a SuperNet to advance revolutionary applications with a consortium of researchers at major research laboratories. More on this and other topics related to technology and DoD can be found at <http://www.defenselink.mil/news/>.

IS/IT and You

As the world changes most of us wish not to change. We always feel nostalgic about the ways things were. We often say, "They don't make 'em like they used to!" With IS/IT they make them better. Every one of us now is surrounded by this revolution and we have to become a part of it. We all use IS/IT when we use an ATM to save time at lunch or use our computers to buy a product or make a travel reservation.



Technology has transcended our organizations. In most organizations, technology has become a main focus. Many articles in FORTUNE magazine are related to IS/IT. This was not the case ten years ago. As IS/IT advances, new and different products are introduced. A.G. Edwards, for example, has a cash management account that combines checking, savings, stocks and bonds into one account electronically. With E-Trade, you can trade stocks electronically via the Internet. On-line services are sold as well, such as reservation systems and other proprietary databases. Amazon.com sells books via the Internet and is quickly becoming one of the biggest bookstores in the world. At DRMS, RCP or other innovations may one day replace some warehousing operations. Sale and receipt of property placed in seconds will soon be possible. You may become the agent or the broker rather than the warehouse operator of today.

DRMS IS/IT: DRMS Business Education

Technology changes customer and business relationships. Customers expect more access to information: inventories, descriptions, faster, easier buying and selling. The information age has made the customer more informed. Savvy customers expect more from the sales professional. Retail and government customers to DRMS now know more about what they are asking for, and they expect the technology to assist them in their purchases. They expect better performance. They expect knowledgeable DRMS people.

Technology frustrates many, and even more try to avoid it. Many people face the advent of computerization of their jobs with cynicism, and others with frustration.

“The cynic feels that, for a manager at least, the idea of using a computer is overrated. Learning and using it takes too much time, time that could be used for something else.”

Timothy J. O’Leary and Linda I. O’Leary in Computer Essentials 1998-1999, McGraw Hill Book Company.

Also described by the O’Learys is the naive person or the frustrated person. The naive person is unfamiliar with computers and thinks they can do much more than they can. The frustrated person is overwhelmed by the task of making his or her computer work. Learning the language of computers and all the complex connections makes them uncomfortable, and they want someone else to do that. Many at DRMS think all computers can communicate with one another and that all computers run on the same system. Many at DRMS have computers at their side and don’t use them or rely heavily on someone else to use it for them. Knowing which one you are -- the cynic, the naive, or the frustrated will help you face your problems and be cured.

IS/IT & YOU



- How have Information Systems and Information Technology affected you?
- How have you responded??

You may even want to consider a career in IS/IT. You could operate computers, become a programmer and create new software, help others learn how to use computers, study to become a systems analyst and fit computer hardware and software to specific businesses needs. IS/IT is a fast growing field. There is a great need for technical writers that explain how all of these software and hardware components and their systems operate. All equipment needs manuals and training, and you could be part of this chain. Computer training is very essential, and many jobs are open in this field. Lastly, you could become a network manager and ensure the security and efficient operation of a business or government agency's computer network. Even if all you wish to do is become better versed in running your own machine, that in itself opens opportunity either at your current job or elsewhere.

DRMS IS/IT: DRMS Business Education

Every job today in one way or another requires computer technology competence. Just by completing this course, you have added to your knowledge-base information that can be carried with you anywhere in the future. You have built some of your own human capital. You have added to your portfolio of "YOU, Inc."!

Tie in "You, Inc." and the other 5 DRMS Business Education Courses

The business education program was designed as a five part educational program to build "YOU, Inc." That's right, YOU. Whenever you add knowledge and skill, it is YOU who have built wealth into yourself. Economists say that human capital or "YOU Inc." is the only type of property that is not taxed. You can carry that capital with you. Whether you build your career at DRMS or anywhere else, the human capital "YOU, Inc." carries with YOU. The DRMS leadership is committing thousands of dollars to create human capital and you get to keep it all!

The first course, *The Challenge: The Choice to Change* was designed to bring focus to all employees about the political and economic environment of our nation and DRMS. It explained why downsizing and reengineering of the organization was essential for DRMS' survival as a mission provider and for the overall success of our value to national defense. It stressed the importance of every job at DRMS and why the challenge was to choose to change to meet the needs of our national defense and to better support that warfighter.

The second course was called *DRMS Diamond Service*. It explained specifically how employees needed to change to better service their customers and provide value. It explained how to do things differently and better, so that when customers have the power to choose who provides their reuse, recycling, and disposal

DRMS IS/IT: DRMS Business Education

services they choose DRMS. The textbook and the course covered many varied topics, including quality, customer service, service system breakdowns as well as how to create a yardstick for DRMS diamond service. Topics discussed are the very ones that are used widely in Commercial Industries. Knowing them and how to apply them are your portable intellectual/knowledge capital.

The third course, *DRMS IS/IT*, by its very title says DRMS is Information Technology, meaning that DRMS' future is in the use of IT. As the name suggests, DRMS must move information and not material. The future of DRMS is the amplification and application of the latest information technology available. DRMS is on, and will continue on, the IT path. The text and course points out that the next challenge after customer service is improvements in information technology and its use by the entire DRMS workforce. Understanding the basics of the "Information World" is the first step to building a solid personal tool kit of great relevance to the government and DRMS.

The fourth course will be Budgeting and Financial Management. This course will be essential for everyone in the DRMS workforce to understand the importance of budgeting and financial management to deliver what internal and external customers of DRMS need at a price they understand. Financial "know-how" is becoming important for all employees to make smart decisions in their day-to-day work. The tools learned in this course will give you the know how for success in today's competitive resources environment.

The fifth course will specifically be related to "YOU, Inc." and the work place and workforce of the future. "You are the CEO of your life." The course will show you how to build human capital and teamwork necessary to push DRMS and its success well into the next century. The management strategy and the focus of every worker into the task at hand will be covered in this capstone

DRMS IS/IT: DRMS Business Education

course. The new DRMS business practices will be explained, as will the impact they are expected to bring. It will instill in each member of the DRMS team the focus necessary to truly complete the challenge.

The choice has already been made. DRMS has and will continue to change! We will move forward with many individuals, and each a "YOU, Inc."

Summary of this chapter

This chapter took the reader from the strategic information technology plans of DoD, DLA, and DRMS right down to the actual operation of information technology on the warehouse floor, as a result of the DRMS Strategic Business Plan. It relates the overall mission and vision of information technology, and its application is to better support the war fighter. The chapter shows where DRMS's place is in that vision and mission. Issues relating to the future of information technology and how IT relates to the productivity and performance of every worker are explained. This chapter brings the broader picture of the strategic plan down into focus. The chapter helps you understand the roles and

“Electronic commerce and related technologies including the Internet and the WWW, will allow DoD to drastically reduce the amount of paper received, processed and stored. . . and to achieve much greater efficiency and economy in our business practices.” William S. Cohen, Secretary of Defense, on page 1, Defense Reform Initiative, November 1997.

responsibilities of each employee. Topics in the chapter also included the reasons we are unwilling to learn and use information technology and what can be done to overcome those fears. The chapter stressed the main reasons for this course - the ones that

DRMS IS/IT: DRMS Business Education

came previously, and the ones that will follow in business education. These courses were designed to be a part of the challenge - part of the choice to change this organization not only into a world class provider of services to DoD. As all other Business Education Courses at DRMS, IS/IT builds upon "YOU, Inc.". In other words these courses build skills that make you a more valued employee. DRMS must have the best customer service, information technology and operation. They must do more than meet the competition. They must beat it. DRMS is IT. That is the future.

Summary of the Course

This text in conjunction with the classroom presentation covered many ideas and concepts, ranging from how to turn on a PC to the strategic focus of the DoD Information Technology Management plan. The topics were wide and varied. However, the overall objective of this course was to familiarize every DRMS employee with what information technology has been used for, what it is currently being used for and how each employee fits into the future use of information technology. The course was intended not only to familiarize and make us more comfortable with technology, but also to give us the basics of how to use that technology.

*"We really need to be updated, just like the systems and programs we work on."
DRMO, November 7, 1997*

All the parts of the DoD related to IS/IT and how they use and manage IT were briefly reviewed. The application of information technology at DRMS was explained in detail, including a description of every system currently being run – from SHIP to BOSS to DAISY. Employees should have gained not only a practical understanding of the nature of computers and information

DRMS IS/IT: DRMS Business Education

technology, but they should understand how information technology will continue to change nearly everything we do. These changes are not a result of anyone's intention; they are simply the result of emerging technologies that were created through worldwide competition.

"In the past when I tried to provide computer training the employees resisted. Now that they are ALL worried about their jobs, I can't give them training fast enough."
DRMO. November 10. 1997.

In a drive to make a better and more competitive product and service, information technology has emerged as the prime mover of most every government and commercial organization. We don't want to leave anyone behind as each of us attempts to CROSS THAT BRIDGE to be part of the new DRMS, we will be riding on the wave of information technology. At DRMS, DRMS IS/IT!

Appendix I – DRMS Fiscal 1997 and Fiscal 1998 Statistics

DRMS Fiscal 1997 Statistics

Operating expenses \$286 million

R/T/D \$3.8 billion

Re-utilized \$2.7 billion

Transferred \$523 million

Donated \$493 million

Sales \$166.4 million

Usable property \$122.7 million

Scrap \$43.7 million

Special programs

Resource Recovery and Recycling
(Reimbursements to the military services)

\$13.8 million

Precious Metals Recovery \$8.2 million

DRMS Fiscal 1998 Statistics

Revenues \$590 million*

Costs \$354 million

Labor Costs \$135 million

Non-Labor Costs \$219 million

RTD – 21% of total receipts

Sources: DRMS' Web Site www.drms.dla.mil in December 1998 and DRMS POM: A Passion for Implementation, DRMS October 20, 1998. Sep 98 DFAS Financial Statements. Calculation (Costs - Labor Cost = Non Labor Cost).

*FY98 Revenue on Sep 98 Financial Statements is \$589.7. This includes service level billings (SLB) from FY98 and some prior years also. SLBs were approximately \$351.4.

Appendix II -- DoD Defense Agencies

The Defense Agencies, authorized by the Secretary of Defense, pursuant to the provisions of Title 10, United States Code, perform selected support and service functions on a Department-wide basis; Defense Agencies that are assigned wartime support missions are designated as Combat Support Agencies. The Defense Agencies are included below with their web site links:

Ballistic Missile Defense Organization

<http://www.acq.osd.mil>

Defense Advanced Research Projects Agency

<http://www.darpa.mil>

Defense Commissary Agency

<http://www.deca.mil>

Defense Contract Audit Agency

<http://www.dtic.mil>

Defense Finance and Accounting Service

<http://www.dfas.mil>

Defense Information Systems Agency

<http://www.disa.mil>

Defense Intelligence Agency

<http://www.dia.mil>

DRMS IS/IT: DRMS Business Education

Defense Legal Services Agency

No web site

Defense Logistics Agency

<http://www.dla.mil>

DRMS

<http://www.drms.com>

Defense Security Assistance Agency

<http://www.dsaa.mil>

Defense Security Service

<http://www.dis.mil>

Defense Threat Reduction Agency

<http://www.dtra.mil>

National Imagery and Mapping Agency

<http://www.nima.mil>

National Security Agency

<http://www.nsa.gov>

Definitions

Abacus – counting device created by the Chinese consisting of stones strung together.

Ada Lovelace (ADA) – considered the first computer programmer. The programming language ADA was encouraged by DoD to maintain large application programs. ADA, the language, was derived from Pascal and named after Ada Lovelace the daughter of the famous English Poet Lord Byron.

Alternative chip technology – chips ten times faster than that of the Pentium II.

Artificial Intelligence – An attempt to model aspects of human thought on computers.

ATAAPS – (Automated Time And Attendance Production System) system used by DRMS for timekeeping.

AURA (Automated Usecode Request Application) – UNIX based, helps people gain access to any to the DRMS computer system.

Ballistic Missile Defense Organization (BMDO) – responsible for managing and directing DoD Ballistic Missile Defense acquisition programs.

Bandwidth – transmission capability of a channel measured in bits per second.

BOSS (Base Operations Support System) – consists of BOSS hazardous, BOSS contracting, BOSS finance, Manifest Tracking, and BOSS supply.

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Browser – Internet software that allows the user to jump from one computer's resources to another computer resources.

Central Processing Unit (CPU) – part of the computer that holds the data and programs for processing data. It consists of the arithmetic – log unit and the control unit. In a minicomputer the CPU is a microprocessor chip.

Character based e-mail – e-mail right off of the minicomputer or HP at a DRMO site.

CIRS – (Contractor Inventory Redistribution System) provides screening capability for material no longer need by defense contractors.

Commercial domain – a commercial connection designated by .com

Communications System (non-office automation) – provides communication capabilities within the agency and all DRMOs using the Internet network.

Computers – electronic devices that can follow instructions to accept input, process that input, and as a result of that process produce information.

Connectivity – the capability of the computer to use information from the rest of the world through data and information sent over telephone lines, cable lines or through the air.

Corporate Daisy (DAISY) – intermediate step for DRMO personnel to access the IRIS.

DAISY (Defense Reutilization and Marketing Service Automated Information System) – A system designed to process

DRMS IS/IT: DRMS Business Education

property through the necessary disposal steps and account for excess and surplus property from receipt to final disposition.

DARPA (Defense Advanced Research Projects Agency) – organization that works on increasing the performance and usability of the Internet.

Data – information comes from data. Facts.

Database management – used to remember and call up memory about information inputted into the system. This can be used in many fields, from medical applications to inventory control at DRMS.

Databases – contain highly structured and organized data.

DWCF (Defense Working Capital Fund) – tracks DRMO deposits versus goals.

DCARS (DLA Contracting Action Reporting System) – system that collects data for all DLA purchasing activities.

DCPDS (Defense Civilian Personnel Data System) – system that handles DRMS civilian personnel data.

DCPS (Defense Civilian Payroll System) – system used by DRMS for payroll.

Defense Automatic Addressing System Center (DAASC) – designs, develops and implements logistics solutions that improve customers requisition processing and logistics management processes worldwide.

DRMS IS/IT: DRMS Business Education

Department of Defense Activity Address Directory (DoDAAD) – Collection Point for most DLA EDI traffic.

Defense Commissary Agency (DeCA) – responsible for providing an effective and efficient worldwide system of commissaries for the resale of groceries and household supplies at the lowest practical price.

Defense Contract Audit Agency (DCAA) – responsible for performing all contract audits for the DoD, and providing accounting and financial advisory services regarding contracts and subcontracts to all DoD components.

Defense Contract Management Command (DCMC) – responsible for providing customer focused contract management services throughout the acquisition life cycle.

Defense Finance and Accounting Services (DFAS) – responsible for standardizing financial and accounting information that will be accurate, comprehensive, and timely.

Defense Information Systems Agency (DISA) – works on a common operating environment for all of DoD. DISA handles the WAN for DRMS.

Defense Intelligence Agencies (DIA) – collects, produces, or through tasking and coordination, provides military and military related intelligence for the Secretary of Defense.

Defense Legal Services Agency (DLSA) – provides legal advice and services for the Defense Agencies, DoD field Activities and other assigned organizations.

DRMS IS/IT: DRMS Business Education

Defense Logistics Agency (DLA) – provides worldwide logistics support for the missions of Military Departments and the Unified combatant Commands under conditions of peace and war. DRMS is in DLSC, which is part of DLA.

Defense Logistics Information Service (DLIS) – Located in Battle Creek, MI handles FEDLOG and works with DRMS using the FLIS and FLIS plus systems to update and keep current descriptions of DoD property.

Defense Logistics Support Command (DLSC) – includes supply centers, service centers, and a distribution center. DRMS is in DLSC, which is part of DLA.

Defense Security Assistance Agency (DSAA) – serves as the DoD focal point and clearing house for the development and implementation of security assistance plans and programs, monitoring major weapons sales and technology transfer issues, budgetary and financial arrangements, legislative initiatives and activities, and policy and other security assistance matters through the analysis, coordination, decision, and implementation processes.

Defense Security Service (DSS) – formally the Defense Investigative Services (DIS). It has been around since the early 1970s and does all of the personnel security investigative work for DLA. It also does all of the Single Scope Background Investigations (SSBI), National Agency Checks (NAC), Special Investigative Inquiries (SII), and Periodic Reinvestigations (PR) for both civilian and contractor employees under the Personnel Security Program. The Personnel Security Program is administered locally in the Command Security Office (DRMS-DDS).

DRMS IS/IT: DRMS Business Education

Defense System Design Center (DSDC) – dedicated to providing quality products and services that meet our customers needs. They develop, maintain and provide technical services for integrated automated information systems in support of DLA, DoD, and other federal agencies. DSDC works with DRMS in DAISY, DNSP and CIRS systems. DSDC is being abolished in 1999 and its functions realigned under DLA.

Defense Threat Reduction Agency (DTRA) – reduces the threat to the U.S. from nuclear, biological, chemical, conventional and special weapons through the execution of technology security activities, cooperative threat reduction programs arms control treaty monitoring and on-site inspection, force protection, NBC defense and counter proliferation.

Demil (Demilitarization) – Altering military equipment in such a way that it can no longer be used for its original function.

DENIX (Defense Environmental Network Information Exchange) – bulletin board system that provides safety and environmental information among other things.

Digital Camera – images are recorded on the camera's memory digitally and can be represented on a computer screen or printed on paper.

DLA IT Mission – to provide infrastructure and decision support capability to access and share information 24 hours a day, 7 days a week to achieve world class logistics performance.

DLA IT vision – Information Technology is the key enabler to delivering world class integrated life cycle support solutions to our customers.

DRMS IS/IT: DRMS Business Education

DNISP (Daisy National Sales Program) – used to market and sell DoD supplies property by Merchandizing, Contracting, and Bidding.

Document file – file created to save documents such as letters, memos, spreadsheets, PowerPoint presentations etc.

Download – the process of transferring information from sources such as the Internet to a computer.

DRMS Mission – provide best value support for efficient and timely reuse, transfer, donation, sale or disposal of excess DoD property.

DRMS Vision – DoD's provider of choice for worldwide reuse, recycling and disposal solutions.

DRMS World Wide Web Server – Home page that provides information on DRMS, Reutilization, Transfer and Donations with the government, public sales, customer service, database searches and zone catalogs.

DSS (Decision Support System) – provides access to DRMS/DRMO personnel to retrieve, recreate and download management reports.

DTS (Defense Travel System) – system used by DRMS for travel.

EAMS (Environmental Audit Management System) – contains copies of the audits/inspections conducted at all DRMOs, the ISO, and DRMS.

EC (Electronic Commerce) – Internet users can access information about products and services offered around the world and use the capabilities of information technology to sort,

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search and explain tremendous detail about the products and services one would like to buy.

EDI (Electronic Data Interchange) – occurs when computers within a small or large network exchange information.

Electronic Mail (E-mail) – Anyone can write and respond to anyone else connected to the Internet. It allows for more than just letters but communication of any information.

EMACS (Equipment Management and Control System) – used by all DRMOs and DRMS-HQ. Designed to provide the primary level field activities and the secondary field activities within DLA with the necessary information to properly manage their own fleet of equipment items.

Encrypting – coding information so only someone allowed to see the information can see the information.

Encryption programs – used to confuse data and files to all others except those who are allowed to read them.

ENIAC – developed in 1946, the first generation of computers. It operated by electricity, the size of an average family home and weighed 30 tons. It could only run one program at a time and was relatively expensive and very unreliable.

ERS (Environmental Reporting System) – provides hazardous disposal reports using the BOSS data files.

Executable file – computer file designated by .exe. A file that usually starts a program.

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Expert System – An artificial intelligence application that uses a knowledge base of human expertise to aid in solving problems.

Extranet – Private network that uses the Internet and common telecommunications systems to securely share information with employees, customers, suppliers and other select groups.

Federal Logistics Data on Compact Disk (FEDLOG) – Database of about 7 million NSN's (National Stock Numbers) with descriptions for armed services for ordering property.

Fiber optics – allows broadcast telephone, television, two-way communication, and other kinds of digital signals to transmit simultaneously. They are broad banded or, in other words, can carry much more information than conventional telephone wires.

File Transfer Protocol (FTP) – lets you look at files anywhere on the Internet and make a copy.

Filters – a Web utility that eliminates certain types of Web sites from being accessed.

Firewall – security hardware and software to restricted use of a computer network only to those that are allowed.

FLIS (Federal Logistics Information System) – has the current description of DoD property. DLIS is responsible for FLIS and uses it to update property descriptions.

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FLIS plus – provided by DRMS, adds additional descriptive information to FLIS. This information is provided to GSA for use by their donation customer.

Flat panel displays – flat monitors that look like a picture on a wall. We have the technology now, but they are too expensive for most people.

Gopher – a software application that works as a means to connect to and retrieve information. Helps people on the Internet access other computers on the Internet.

GroupWare – software used on a network and serves a group of users working together on the same project. It allows for communication of many users to many others.

GSA (General Services Administration) – A major agency of the federal government.

Hackers – computer experts with bad intentions. They find codes to break codes and bypass codes to access private or secret information on other's computer systems.

Hardware – computer equipment that includes the computer, monitor, keyboard, printer and other devices. The parts of the computer that input, process, store, communicate and give output about information.

Helper applications – helps a computer user run independent programs that can be accessed from your browser. Also called add-ons.

Host computer – a large centralized computer. Used as an Internet connection. The host computer is connected to the Internet and allows other computers to follow the host computer's path to access the Internet.

DRMS IS/IT: DRMS Business Education

HTML (Hypertext Markup Link) – programming language used to display Web pages. DRMS uses HTML for its Web Site.

Human resources responsibilities – keeping of personnel files and the processing of information related to those files.

Information pushers – a web utility that allows a computer user to screen what the user wants and only get items the user is interested in. Users can select areas of interest, called channels, and they will automatically send these items of interest to your hard drive.

Information system – a collection of data, hardware, software, procedures and more importantly people who put the whole workflow management system together.

Information Technology Reform Act of 1996 – mandates that everyone in DoD improves their day to day mission processes and properly uses information technology to support these improvements.

Information Warfare – the DoD information operation conducted during time of crisis or conflict to achieve or promote specific objectives over a specific adversary or adversaries. Also called IW.

Integrated circuits (or silicone chips) – contain hundreds of millions of transistors in a tiny chip. The chips are mounted on carrier packages, which then plug into sockets on the system board in a computer.

Internet – a world wide network that lets anyone with a personal computer and a modem connect to it. It is an infinite resource for any topic.

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Internet2 – planned to be ongoing in 2002. It will allow limited access but greatly increase speed for advance interfaces by corporations, government, and large organizations.

Intranet – similar to the Internet but owned by a public or private organization. It is closed and dedicated to staff.

IRIS (Interrogation Requirements Information System) – a National Stock Number (NSN) interrogation system which allows users to determine the availability of property bearing specific NSNs at all DRMOs worldwide. IRIS is scheduled to be replaced.

LAN (Local Area Network) – a network of computers and computer systems that are relatively close to one another, such as in the same building.

MADS (Message Accountability and Delivery Systems) – DLA messaging system implemented as a temporary AUTODIN replacement.

Mailing list – a type of discussion group that is available to users on the Internet.

Mainframe – A large room size computer that can handle millions of instructions per second. Large corporations or organizations rely on these to handle large programs with an extremely large amount of data.

MASS (Management Analysis Statistical System) – relational database designed to satisfy various levels of management as an information resource tool.

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MEDALS (Military Engineering Data Asset Locator System) – system for the DoD AIS central index for engineering drawings.

Metropolitan Area Network (MAN) – extends a LAN network to a large city or a large metropolitan area.

Microcomputer – A small, relatively low cost personal computer for individual users.

Microprocessor – packages an entire Central Processing Unit (CPU), complete with memory, logic and control circuits on a single chip.

MIDAS (Management Information and Distribution Access System) – the single focal point for management information in DAISY.

Military domain – is a military connection on the Internet designated by .mil

MILSTRIP (Military Standard Requisitioning and Issue Procedures) – standard method of ordering property in the DoD supply system.

Minicomputer – came into being during the third generation of computers. It is desk – sized computer that falls in the size range between a microcomputer and a mainframe in its storage and processing capabilities.

Mission of Information Technology Management – to provide the right information, at the right place and time from the right sources, in a form that users can understand and reliably

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use to accomplish their mission and tasks, effectively and efficiently.

Modem – communication device that translates electronic signals over phone lines into and out of a computer.

National Imagery and Mapping Agency (NIMA) – provides timely, relevant and accurate imager, imager intelligence and geospatial information in support of the national security objectives of the U.S.

National Security Agency (NSA) – responsible for centralized coordination, direction and performance of highly specialized intelligence functions in support of U.S. Government activities.

Netiquette – etiquette for e-mail and for text on the Web.

Network architecture – explains how a network is arranged and how computer resources are shared.

Network topology – the principle types of topologies are called hierarchical, star, bus or ring. It is the arrangement or configuration of the network of computers.

Newsgroup – popular type of discussion group available on the Internet. It uses a special network of computers called the Usenet. Usenet maintains the newsgroup listing. Newsgroups are organized into topic areas and then divided.

Node – device connected to the network. It can be a computer, a printer, or some other storage device.

NSN – National Stock Number.

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OA HP (Office Automation Hewlett Packard) – system serves as the Office Automation/Mail Hub for DRMS-HQ.

Offline searches – means of initiating several search engines simultaneously. It sorts, eliminates duplicates and gives you one integrated listing.

ORS (Online Report System) – application that processes and generates reports on-line for DRMS in the areas of cost, accounting, payroll and personnel

Parallel Port - allows lines to be connected to a computer that can transmit at the same time.

Parallel processing – makes speech, vision and other recognition programs run better and faster.

PERSACTION (Personnel Action Request System) – automated system for submitting, approving, processing and tracking of Standard Form 52.

Personal Digital Assistant (PDA) – also know as the palmtop computer. It combines pen input, writing recognition and personal communication tools in a very small device.

Plug Ins – automatically loaded into a computer to work with a browser.

Port – socket on the side of a computer used to connect a monitor, printer, mouse, modem, etc.

Portable computer – a computer small enough to carry around. It weighs between 5 to 16 pounds. It is DC (battery) powered and AC powered to operate anywhere.

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Protocol – rules for computer data exchange.

PTR (Problem Tracking Reporting System) – small database developed to establish responsibility for and track problems encountered by DAISY or ADPE/T users.

Punch cards – Used by the first generation of computers. They were used to transmit data into the computers such as the ENIAC and UNIVAC.

RAM (Random Access Memory) – computer memory, accessed when a program is in use. It holds the program and data only while being used.

RCP (Recycling Control Point) – system that facilitates the movement of information, not property by in place receipt and disposition. It was designed to eliminate double handling of property.

ROM (Read Only Memory) – chips that have programs built into them. The user cannot change the contents of the ROM.

SALD (Safe –Alert/Latent Defect) – Database Master File contains the identity of and special handling instructions for disposing of defective property.

SAMMS (Standard Automated Material Management System) – information system with supports the DLA wholesale material management mission for hardware, medical clothing and textile commodities.

SASP (Small Arms Serialization Program) – system for control and accounting of small arms, by serial number, from initial receipt to final disposition.

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Serial Port – enables a line to be connected to a computer that will send bits of information one after the other.

Server – connection to the Internet that can store document files and programs. Computer hardware that “serves” more than one computer.

SHIP (Single Hazardous Input Program) – Microsoft Windows based program intended to eliminate dual entry of data to the DAISY and BOSS systems.

SIMS (Safety Information Management System) – provides an automated system for safety deficiencies found on safety inspections, and for employee safety complaints.

SitRep (Situation Reporting System) – automated system for reporting an emergency or urgent situation that occurs at a DRMO.

Software – a computer program that allows the user to do word processing, spreadsheets, graphics, multimedia applications, web publishing and other computer assisted tasks.

Solid State Storage Devices – may one day replace disk drives for memory and storage of information in computers.

Spreadsheet – based on a traditional accounting worksheet format, it has rows and columns that can be used to analyze and present data.

Subnotebooks – ultra portable small computers that weigh from 2 to 6 pounds.

Supercomputers – the fastest and largest computers to date. They can process billions of program instructions per second.

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Supernet – uses advanced and revolutionary IS/IT applications with a consortium of researchers at major research laboratories.

Surfing the Web – similar to channel “surfing” only you browse or “surf” through web pages on the Internet.

Suspense Database – contains all HQ internal suspenses. It is used for tracking timeliness of all supenses.

Systems software – allows a software application to interact with the computer. It helps the computer manage it’s own internal information resources.

Telnet – makes a computer a terminal for other computers on the Internet. It allows you to run programs being held by other computers so those programs do not have to be loaded on your computer.

Terminal – input and output device that consists of a keyboard, a monitor, and a communications link.

Terminal connection – used to access a high-speed modem and a telephone line.

Topology – How a network of computers are arranged and connected together.

Transistor – an electronic switch that either allows or does not allow an electronic signal to pass through it. Used in second generation computers.

UNIVAC (Universal Automatic Computer) – one of the first computers used by the U.S. Census from 1951 to 1963.

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Virtual – describes something that can be available at any time, in any place. A virtual product or service is one that can be provided instantly, upon demand, and tailor-made to the customer's needs.

Virtual Reality – an electronic simulation of real life.

Viruses (computer) – changes to programs that are sent via e-mail or on disc that are hidden in computer programs or computer files. Computer users unknowingly input them into their computer files or computer programs while running computer applications.

Vision of Information Technology Management – information superiority achieved through global, affordable, and timely access to reliable secure information for worldwide decision making and operations.

WAIS (Wide Area Information Server) – an Internet service which makes the search capabilities of a gopher better. They have the capabilities to use key words and phrases to search the Internet for resources on a single subject. A WAIS search is more thorough and provides more specific references.

WAN (Wide Area Network) – network of computers and other systems connected by satellites and microwave relays that can span an entire country.

Web utilities – programs that work with your browser to increase its capabilities.

Word processing – computer program used to edit, save, create, and print documents of text. DRMS used the Microsoft Word wordprocessing program on their PCs.

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Workflow management – managing work that flows up and down the organizational chain of command and sideways within departments. It handles the flow of information within an organization and is key to business success.

Workstations – a desktop computer that is more powerful than a personal computer and can run more powerful programs.

World Wide Web (www) – accessed by a Web browsers. It is an Internet search tool that uses hypertext to jump from document to document from computer to computer anywhere on the Internet.

Year 2000 Problem (Y2K) – fear of some computer experts that computers and the products that use computers will fail on January 1, 2000. It could cause interruptions in service because of embedded clocks in operating systems.

DRMS IS/IT: DRMS Business Education

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About the Authors

Dr. Saul Z. Barr is Professor of Economics Emeritus at The University of Tennessee, President of Barr Group, Inc. and associate to Intergraph Corporation. He recently served as Professor of Defense Economics and International Relations at the Air War College in Montgomery, Alabama. He has written numerous books and research papers at the high school and college levels. Dr. Barr served as President of the Tennessee Economic Association and Regional Editor of the Journal, *International Advances in Economic Research*. *DRMS Business Education: The Challenge The Choice to Change* by Dr. Barr was written to assist the reorganization and process reengineering at DRMS. It was the first in a series of five planned Business Education courses.

Before working with DRMS, Dr. Barr has trained thousands at Goodyear Tire and Rubber Company, DoD, Raytheon, M/A – COM, and Aluminum Company of America and others in free enterprise and Business Education to understand why and how their organizations must transition and reengineer in a changing world. For the Goodyear Business Education Program, Dr. Barr won the Leavy Award for Excellence in Private Enterprise Education. The Business Education Programs were unique in that they were taught as a catalyst for major organizational changes. He serves as a consultant to an all distance education university, working on innovative ways to teach classes using Information Technology in 14 academic areas from information technology to health administration.

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DRMS IS/IT: DRMS Business Education

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A computer industry pioneer, **Intergraph Corporation** provides a diverse range of comprehensive engineering, mapping/GIS, emergency management, and IT solutions (hardware, software, and services) for the process and building, utilities and transportation industries, and for local and national governments. For the creative and technical desktop or enterprise, Intergraph offers Intel/Windows NT-based workstations, PCs, and servers, support, consulting, and training services. Industry analysts consistently rank Intergraph as a top solutions provider in the markets the company has served for three decades.

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